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NONAGRICULTURAL
INCOME AS A MEASURE OF
DOMESTIC DEMAND
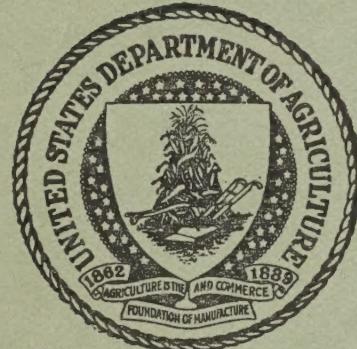
UNITED STATES
DEPARTMENT OF AGRICULTURE
AGRICULTURAL ADJUSTMENT ADMINISTRATION
WASHINGTON, D. C.

NONAGRICULTURAL INCOME AS A MEASURE OF DOMESTIC DEMAND

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NONAGRICULTURAL INCOME AS A MEASURE OF DOMESTIC DEMAND

The purpose of this bulletin is to make more generally available a monthly index of nonfarm income which has been found useful in the analyses of agricultural price fluctuations, particularly by price analysts in the commodity sections of the Agricultural Adjustment Administration. Agricultural price analysts have been handicapped in the past by the lack of a comprehensive measure of the money income of consumers. The index presented in this study is an approximation to the current money purchasing power of urban consumers. It is based essentially on such data concerning the receipts of all individuals excepting receipts arising from agriculture, as are included in the United States Department of Commerce annual estimates of national income.

Neither the annual estimates of the Department of Commerce defined as "national income paid out" nor the monthly indexes described herein embrace all money receipts of all individuals, but they are the broadest available measures of the flow of money income into the hands of consumers. Some of the minor gaps in this information are indicated in this study, but it is expected that as the Department of Commerce continues to improve upon its definitions of national income and continues to broaden its sources of information on individual incomes, revisions of the present monthly index of nonagricultural income will be undertaken.

It is conceivable that the Department of Commerce, as it expands its work in estimating the national income, may itself undertake to prepare a monthly measure of the national income. If such a measure were made to represent the current flow of money income to consumers, it would undoubtedly be an improvement upon the present index. While its primary purpose would be to show the current sources and distribution of the national income among the various population groups, it would also become a valuable addition to the much-needed measures of demand in the studies of fluctuations in agricultural and industrial production and prices.

WHAT "NONAGRICULTURAL INCOME" MEANS

The index which is the subject of this study may, for all practical purposes, be considered as a monthly index of the national income paid out to individuals, exclusive of that arising in agriculture, corresponding with minor qualifications to the annual estimates of the Department of Commerce. However, inasmuch as definitions of national income and methods of estimating are still in a state of flux, it has seemed advisable to avoid the confusion of an additional series labeled national income, and for that reason the somewhat distinctive label "nonagricultural income" has been adopted for the index described in this study.

In the course of the preparation of this manuscript valuable suggestions and constructive criticisms were received from the Income Section of the Division of Economic Research of the Bureau of Foreign and Domestic Commerce, Central Statistical Board, and the Bureau of Agricultural Economics.

I. REVIEW OF MEASURES PREVIOUSLY USED

Before entering into a detailed discussion of the content of the monthly nonagricultural income estimates presented in this study as a new measure of domestic demand, a brief review of the various measures which have previously been used by the United States Department of Agriculture appears advisable. Such a review shows that during the past 10 years rather rapid progress has been made toward developing broader measures of domestic demand. It illustrates, at the same time, the difficulties which agricultural economists face in price and outlook work, because adequate current data on consumer incomes are lacking.

Two broad types of measures of domestic demand—physical and money—have been found useful in the agricultural-price analysis and outlook work of the Department of Agriculture. In analyzing prices and consumption of the chief farm commodities used for industrial purposes, such as cotton and flaxseed, physical measures of industrial activity have been utilized. In the case of cotton prices and consumption, the Federal Reserve Board index of industrial production and some general indexes of business activity have been effectively used. In the case of flaxseed, measures of the physical volume of building contracts awarded have been utilized. The close correspondence between fluctuations in the domestic consumption of cotton by mills and fluctuations in industrial production is shown in chart I.
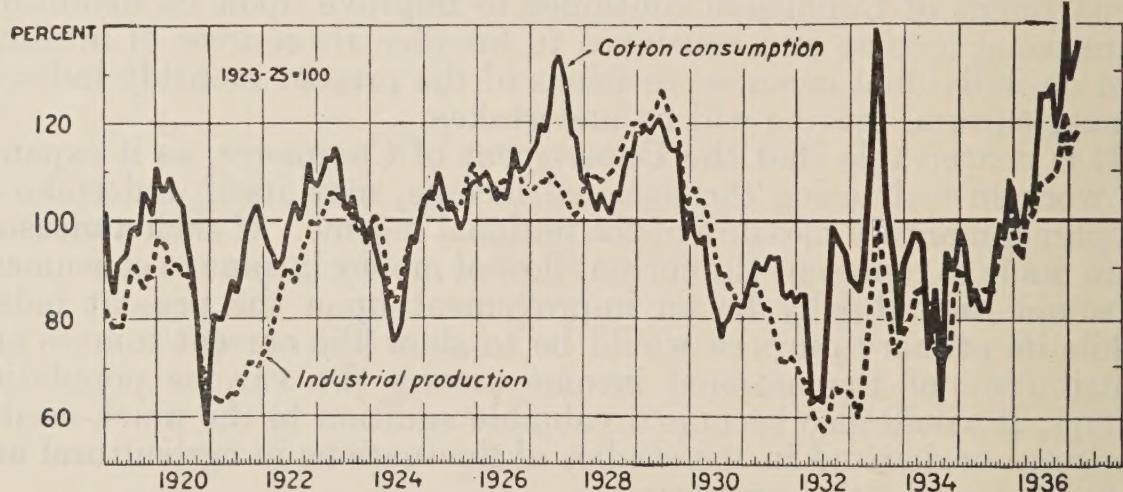
CHART I.—COTTON CONSUMPTION AND INDUSTRIAL PRODUCTION IN THE UNITED STATES, BY MONTHS, ADJUSTED FOR SEASONAL VARIATION, 1919–37.

In price and demand analyses of farm commodities used for industrial purposes, an index of industrial production may be effectively used as a measure of change in demand.

For many other commodities, particularly food products, measures of demand which represent the money purchasing power of consumers are necessary. For this purpose, a variety of measures have been utilized. In the early years when only indexes of business activity and factory employment were available, these were used on the assumption that they represented also, in a general way, the variations in monthly incomes of consumers. When the Federal Reserve Board published a monthly index of factory pay rolls in 1925,[1] a measure of the money income of a large body of urban consumers became available for use. This index, however, covered only about 25 percent of the working population outside of agriculture.

[1] FEDERAL RESERVE BULLETIN, Washington, D. C., May 1925 and November 1929.

Estimates of total national income were made available by the National Bureau of Economic Research [2] somewhat earlier than the Federal Reserve Board index of factory pay rolls was published. But these estimates of annual national income were a year or two behind and estimates for several of the late years were preliminary. Furthermore, in agricultural-price analysis and outlook work, a growing need was felt for monthly estimates of consumer purchasing power, covering a broader group of consumers than those represented by factory pay rolls.

INDEX OF MONTHLY MONEY INCOME OF INDUSTRIAL WORKERS

This need led the Bureau of Agricultural Economics, United States Department of Agriculture, in 1932, to prepare an index of monthly money income of industrial workers from 1919.[3] Three monthly income series—factory pay rolls, railroad pay rolls, and a rough series of construction pay rolls derived from construction contracts awarded—were combined for this industrial-worker income index. While this index of the money income of factory, railroad, and construction workers represented perhaps 35 percent of the working population outside of agriculture instead of the 25 percent represented by factory pay rolls alone, its usefulness was limited.[4] One of its components, the construction index, became less reliable as an assumed measure of all construction pay rolls as the depression deepened. Furthermore, the three items are among the most variable of all the income streams. As the depression developed, the need of a broader measure that would include the more stable portions of labor income as well as other realized income—entrepreneurial and property—became more urgent.

In the search for broader measures of money income of consumers, it was observed that fluctuations in the annual gross income of corporations as reported to the United States Treasury bore a striking resemblance to those in the estimates of national income and since this series was more currently available than the estimates of the national income then prepared by the National Bureau of Economic Research, it was for a time utilized both as a measure of domestic demand for food products and as a means of estimating in advance the national income. The annual changes in gross income of corporations are shown in chart II. In appendix A there is reproduced for reference a brief article published in 1933 which contains the monthly index of money income of industrial workers (in factories, on railroads, and in construction) in comparison with farm income. It also contains an annual index of total consumer income based on the gross income of corporations, and shows how closely it corresponds with consumer expenditures for four commodities—pork, beef, lamb, and butter.

Changes in the series of gross income of corporations paralleled the fluctuations in the national income well into the depression after 1929, but at the depth of the depression discrepancies appeared. This was due to the fact that for awhile a substantial part of the national in-

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[2] INCOME IN THE UNITED STATES, ITS AMOUNT AND DISTRIBUTION, vol. 11, pp. 331–332, National Bureau of Economic Research, 1922; also W. I. KING, "National Income and Its Purchasing Power", National Bureau of Economic Research, 1930.

[3] AGRICULTURAL SITUATION, February 1933 (reprinted in appendix A).

[4] An industrial workers' income index similar to that first computed, except that mining has been substituted for construction, is now published regularly by the Bureau of Agricultural Economics, U. S. Dept. of Agriculture. The portion of total nonagricultural income represented by this index is illustrated in chart III.

come paid out to individuals came out of past corporate earnings retained in surplus accounts, while as recovery started some of the gross earnings of corporations went to replenish surpluses. In 1933 national income "paid out" as estimated by the Department of Commerce [5] declined while corporate income advanced.

MONTHLY INDEX OF CONSUMER INCOME

To fill the need for a broader, more reliable, and more up-to-date index of consumer income, O. V. Wells and L. H. Bean, of the Department of Agriculture, developed in 1933 a monthly index of consumer income extending back to 1919.[6] It utilized certain of the annual income groups contained in the national income estimates of the National Bureau of Economic Research, together with such monthly measures of pay rolls in manufacturing, distribution, and service industries, and of interest and dividend payments as were then available.
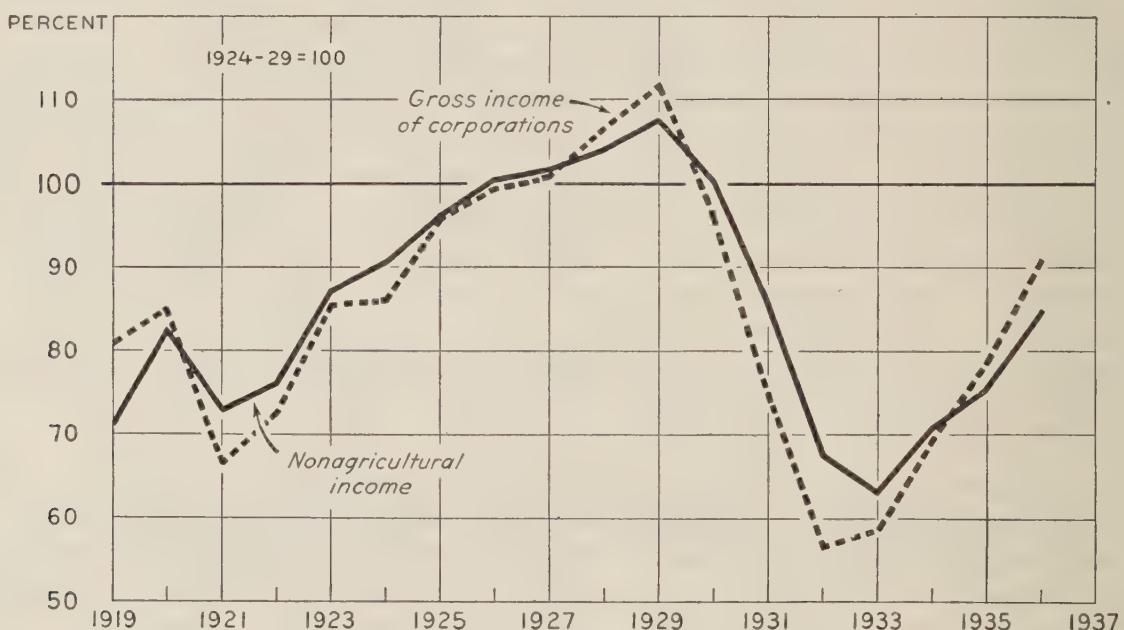
CHART II.—NONAGRICULTURAL INCOME AND GROSS INCOME OF CORPORATIONS, BY YEARS, 1919–36.

There is a close correspondence between movements in gross corporate income and nonagricultural income except in extreme depression when corporations pay dividends out of surplus.

This compilation was entitled "Income of Urban Consumers, 1919–33." It was used in connection with the 1933 Annual Outlook Conference and report of the Bureau of Agricultural Economics and was distributed among agricultural economists and price analysts. Inasmuch as those who have used it have not had access to the unpublished manuscript in which the work was described, and inasmuch as it has been utilized in the present study in building up monthly estimates of nonagricultural income for the years prior to 1929, the original description of the index is included as appendix B.

In 1934, the task of distributing by months the Department of Commerce annual estimates of total national income from nonagricultural sources, was undertaken by the Agricultural-Industrial Relations Section of the Program Planning Division, Agricultural

[5] NATIONAL INCOME IN THE UNITED STATES, 1929–35, U. S. Department of Commerce, 1936.
[6] Appendix (B) is a reproduction of the study "Income of Urban Comsumers" by O. V. Wells and L. H. Bean, December 1933.

Adjustment Administration. Commodity economists in the Agricultural Adjustment Administration already had found the Wells-Bean index of urban consumer income more serviceable than the less inclusive indexes previously available.

The new monthly measure of domestic demand—nonagricultural income—developed in the Agricultural Adjustment Administration during the fall of 1934, was first published in February 1936.[7] This index entails a monthly distribution of annual Department of Commerce estimates of national income, exclusive of agriculture's contribution to the total. Prior to the period covered by Department of Commerce estimates of national income, which extend back only to 1929, Willford I. King's[8] annual estimates are used. These are distributed by months through the use of the Wells-Bean urban consumer income index, as explained in some detail later.

This new measure of domestic demand includes three basic monthly series that are available from 1929. One is a composite of all labor income, exclusive of the income of farm labor; another is a composite of income withdrawn from businesses by their owners, called entrepreneurial income; and the third represents property income (interest, net rents, and dividends) excluding agriculture. These three constitute the national income paid out to individuals, exclusive of payments arising in agriculture, which we have called nonagricultural income.

II. NEW MEASURE OF DOMESTIC DEMAND

Studies in agricultural prices usually call for a measure of domestic demand exclusive of farm income, for the bulk of most farm products is consumed off the farms. There are cases, however, where substantial quantities of farm products are marketed in agricultural as well as urban areas. Consequently, it has seemed desirable to prepare an additional series representing agriculture's contribution to the national income, detailed basic data for which are available from 1924. There are thus made available in this study, a monthly series of nonagricultural income from 1919 to 1937 and a monthly series approximating the total national income paid out to all individuals from 1924 to 1937.

The annual data on nonagricultural income for the years 1919 to 1926, inclusive, are shown in chart III, and for purposes of comparison there are also shown the annual factory pay rolls, the composite of industrial workers' income derived from manufacturing, mining, and railroads, and total labor income from all industries and occupations except farm labor. The differences in magnitude represented by each series are obvious. It is also clear that as measures of consumer income or money purchasing power, there is very little difference between the factory pay-roll series and the series labeled "industrial worker income." Neither of these, however, shows the upward trend in total consumer income that developed during the 1920's as does the more comprehensive series of total labor income.

DIFFERENCES AMONG COMPONENT FACTORS OF INDEX

The absolute money values shown in chart III do not reveal the similarities and differences between the four series in percentage terms. These are more clearly brought out in chart IV, where each

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[7] AGRICULTURAL SITUATION, February 1936.

[8] Throughout this study King's estimates, unless otherwise noted, refer to those given on pp. 152–153 of America's Capacity to Consume, Brookings Institution, 1934, which are either King's estimates or those of the National Bureau of Economic Research, continuing King's series.

series is expressed in terms of the 1924–29 average. Annual fluctuations in total labor income parallel those in total nonagricultural income and both of these differ markedly from the other two less representative series.
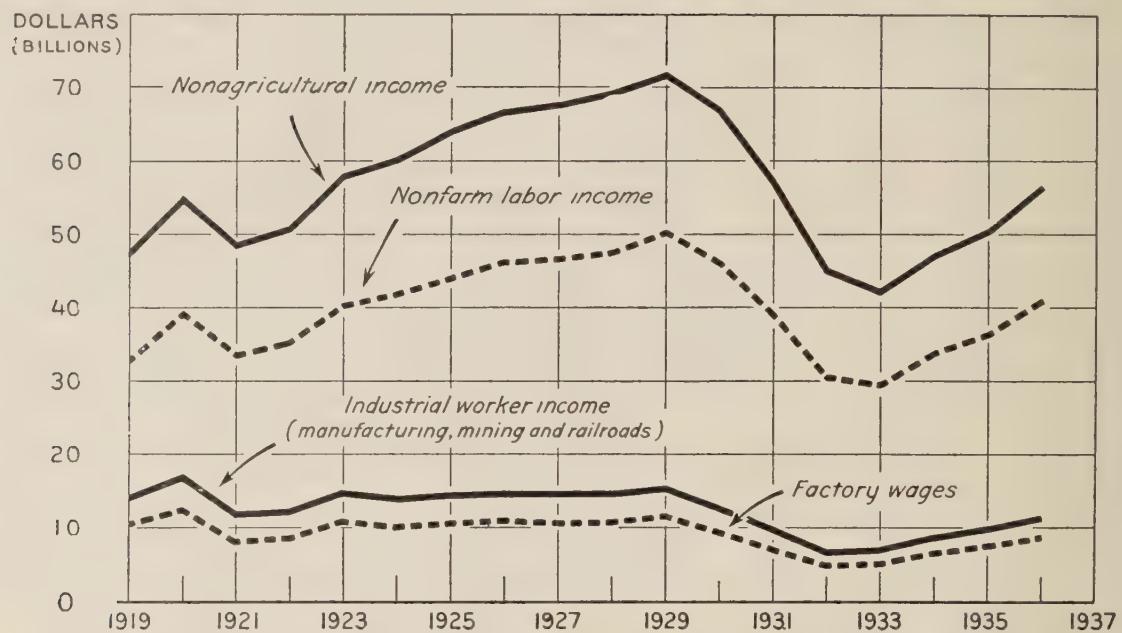
CHART III.—NONAGRICULTURAL INCOME, LABOR INCOME, INDUSTRIAL-WORKER INCOME, AND FACTORY PAY ROLLS, BY YEARS, 1919–36.

Employment and pay rolls in factories, mines, and railroads did not increase materially between 1923 and 1929. Consequently they do not reflect the rise in domestic demand or purchasing power as do the total labor income or total nonagricultural income.
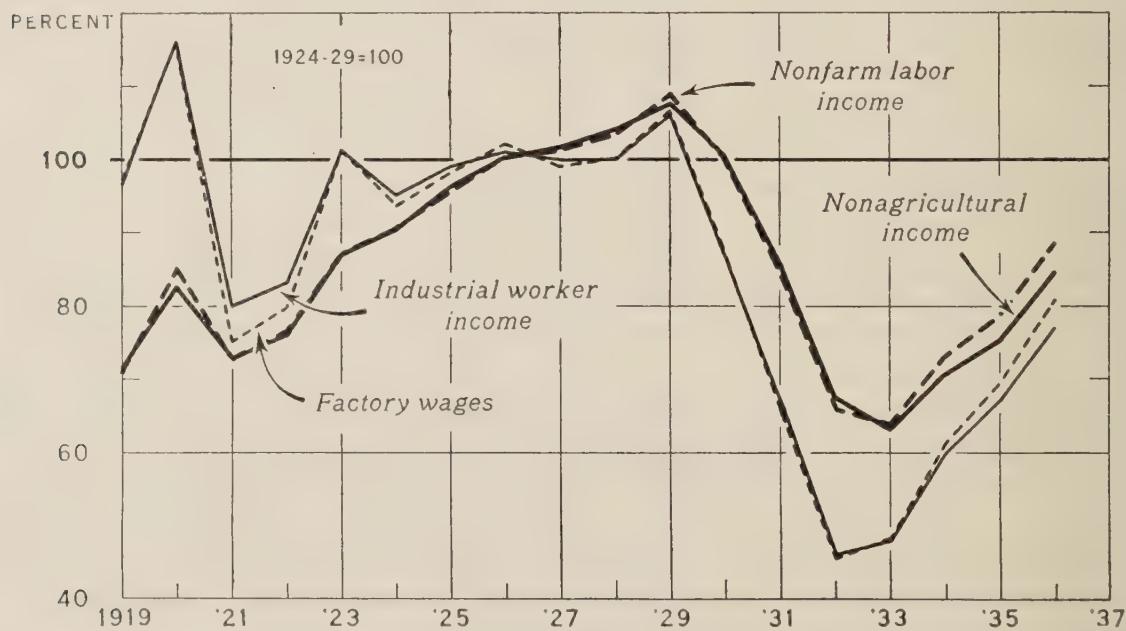
CHART IV.—INDEXES OF NONAGRICULTURAL INCOME AND OF LABOR INCOME, BY YEARS, 1919–36

The two comprehensive measures of demand, total labor and nonagricultural income, show similar trends and fluctuations. The less comprehensive measures show greater fluctuations but no upward trend.

The utility of the measure of nonagricultural income developed in this study can be readily demonstrated. It is, for example, the basic factor in the annual aggregate retail expenditures for food. For the

years 1929–36, retail food sales maintained a remarkably constant relation to this measure of total money purchasing power. This is shown in table 1 and chart V.

TABLE 1.—*Nonagricultural income and retail food sales in the United States, by years, 1929–36*

[Dollars in millions; i. e., 000,000 omitted]

	Nonagricultural income [1]	Retail food sales [2]	Ratio food sales to income		Nonagricultural income [1]	Retail food sales [2]	Ratio food sales to income
			Percent				*Percent*
1929	$71,609	$15,206	21.2	1933	$42,054	$9,197	21.9
1930	66,830	14,186	21.2	1934	47,080	10,257	21.8
1931	57,048	12,352	21.7	1935	50,188	11,043	22.0
1932	44,877	9,865	22.0	1936	56,315	11,929	21.2

[1] See table 2.
[2] Based on Bureau of Census and Bureau of Foreign and Domestic Commerce (retail trade section) data. Excludes estimated sales through liquor stores and drinking places beginning with 1933 as follows: 1933, $123,000,000; 1934, $699,000,000; 1935, $1,052,000,000; and 1936, $1,335,000,000.
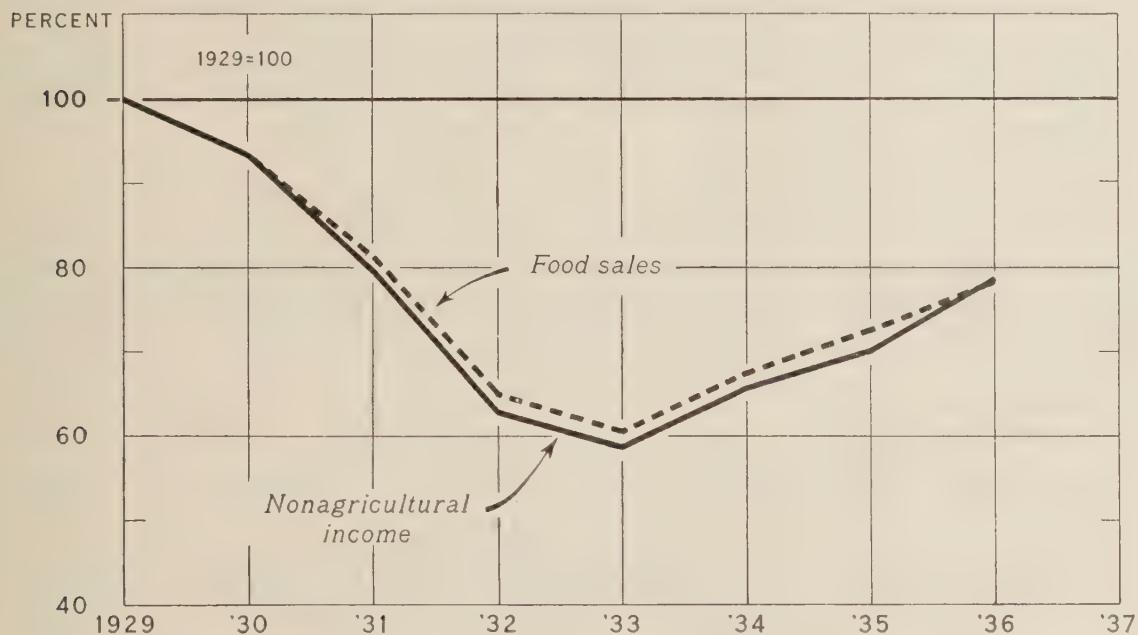
CHART V.—INDEXES OF NONAGRICULTURAL INCOME AND OF RETAIL EXPENDITURES FOR FOOD, BY YEARS, 1929–36.

Fluctuations in retail food sales closely parallel changes in nonagricultural income.

In 1929, retail food sales represented 21.2 percent of nonagricultural income, in 1932, 22 percent; and in 1936, 21.2 percent. This does not necessarily mean that every group of consumers spent approximately the same proportion of its income for food, but it does indicate that retail food sales in the aggregate, made up of a multitude of consumer adjustments to changing income and prices, have fluctuated with nonagricultural income throughout the period embracing a major recession and recovery.

A similar correspondence appears between the index of labor income and estimates of retail expenditures for meats and dairy products by nonfarmers. As shown in chart VI, the measures of labor income and of expenditures for meats and dairy products show almost perfect correlation, except for the 3 years 1919 to 1921.
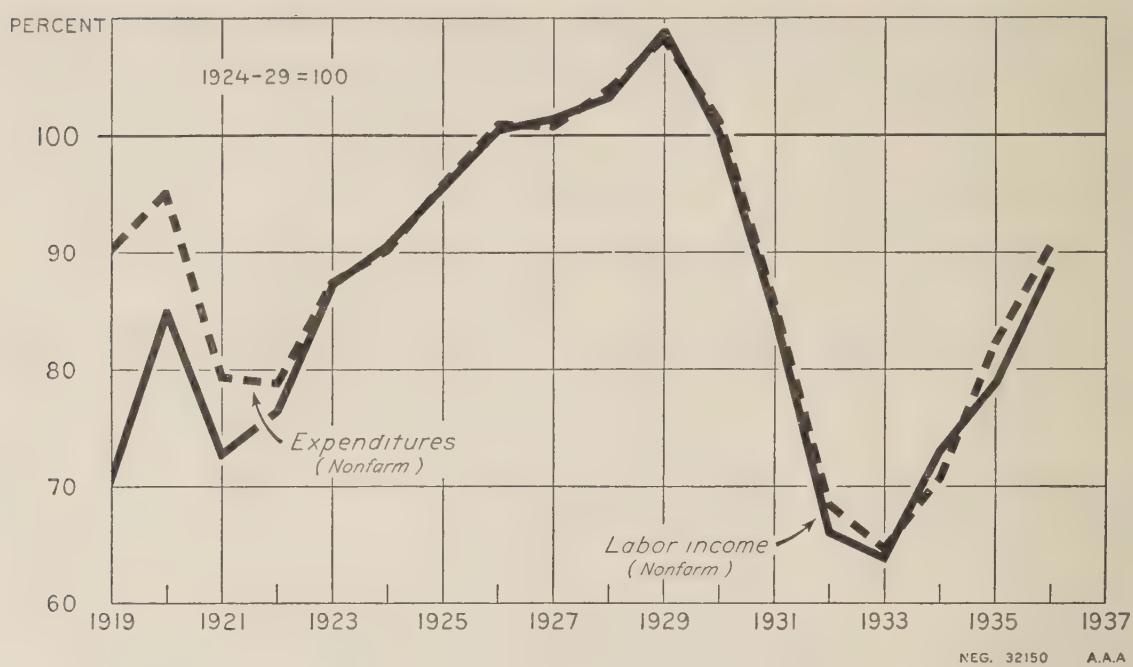
CHART VI.—NONAGRICULTURAL LABOR INCOME AND RETAIL EXPENDITURES FOR MEATS AND DAIRY PRODUCTS, BY YEARS, 1919–36.

Changes in annual retail expenditures of the nonfarm population for meat and dairy products closely parallel the changes in labor income from nonfarming occupations.

RELIABILITY OF MONTHLY INDEXES, 1919–37

The monthly indexes of nonfarm income from 1919 to 1937, developed in later pages of this publication, are shown in chart VII. Naturally the question will arise, particularly after reading about the
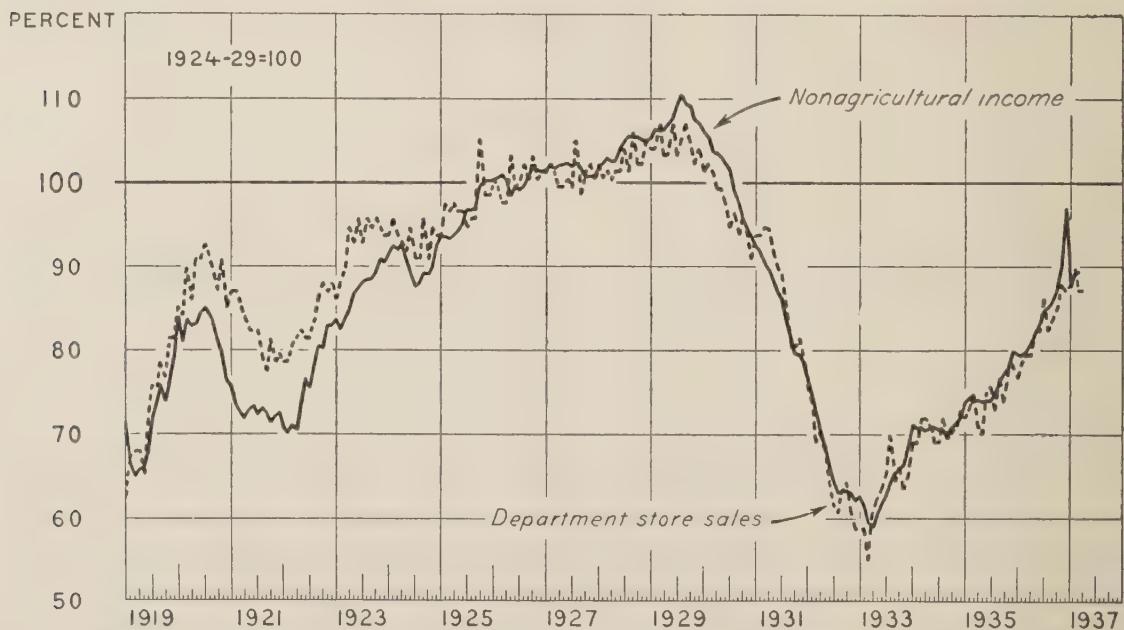
CHART VII.—NONAGRICULTURAL INCOME AND DEPARTMENT-STORE SALES, BY MONTHS, ADJUSTED FOR SEASONAL VARIATION, 1919–37.

Changes in nonagricultural income are reflected in similar changes in expenditures for manufactured products, as measured by department-store sales.

various devices that had to be adopted in developing this index, as to how reliable the monthly figures are. At present there is no test that will answer this question and probably none will be available

until a more thorough set of estimates becomes possible. There are, however, corroborative data, two sets of which are used in this study for illustration, that serve to establish the general adequacy of the index. There is, for example, the Federal Reserve Board index of department-store sales. It represents a broad sample of consumer expenditures and logically may be expected to reflect national income and consumer money-purchasing power. Chart VII shows how closely the index of nonagricultural income corresponds with the index of consumer purchases in department stores. The peaks and turning points, except in 1923, are almost identical and the similarity in magnitude of change is striking, particularly after 1923. The sharper rise in the income index during the last quarter of 1936 reflects the flood of dividend payments resulting from the tax on undistributed profits. These payments apparently were not spent for nondurable consumer goods.
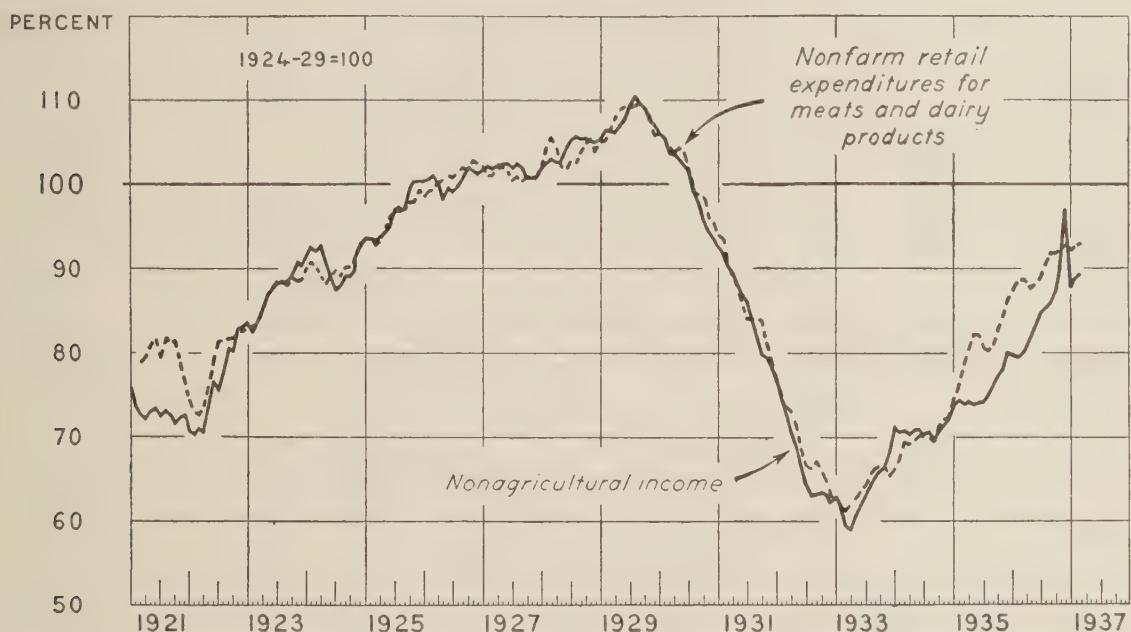
CHART VIII.—NONAGRICULTURAL INCOME AND RETAIL EXPENDITURES (3-MONTH MOVING AVERAGE) FOR MEATS AND DAIRY PRODUCTS, BY MONTHS, ADJUSTED FOR SEASONAL VARIATION, 1921-37.

The index of nonagricultural income bears a strong resemblance to the index of retail expenditures of the nonfarm population for meat and dairy products.

Another corroboration is found in the comparison with nonfarm retail expenditures for meats and dairy products, by months, 1921-37 (chart VIII). For the period 1922-35 the similarity between the estimates of income and of expenditures for these farm products is about as close as can be expected. The discrepancy in the year 1935-36 is apparently due to the higher prices for dairy products and meats caused by shortages due to the record-breaking droughts of 1934 and 1936.

The monthly index of nonagricultural income may be taken to represent approximately 90 percent of the national income. In chart IX are given by months estimates in dollars of both the agricultural contribution to the national income from 1924 to 1937 and the nonagricultural contribution from 1919 to 1937. In addition, there is shown the sum of these two, constituting monthly estimates of the national income paid out.

NONAGRICULTURAL INCOME APPROXIMATES INDIVIDUAL INCOMES OF NONFARMERS

It may be stated at this point that nonagricultural income, as used herein, is not the total income of the nonfarm population but is the national income originating from activities other than agricultural. It does not include any income of the nonfarm population which originates on farms. Similarly, agriculture's contribution to national income [9] is not the net income of farmers but is the portion of the national total originating in agriculture. It excludes income of farmers derived from nonfarming sources.

Nonagricultural income includes a portion of the total national income which actually goes to farmers; such as the earnings or income of farmers from nonfarm activities and investments. It excludes a portion of the national income which actually goes to the nonfarm population such as net farm rents, farm mortgage interest, and
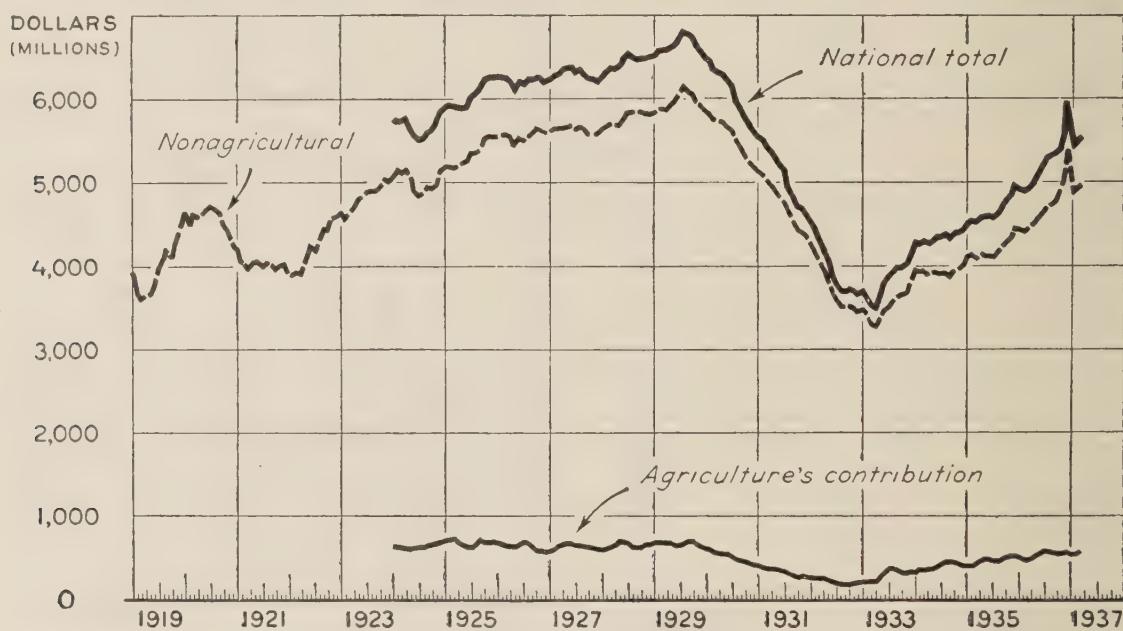
CHART IX.—NATIONAL INCOME, BY MONTHS, ADJUSTED FOR SEASONAL VARIATION, 1919–37.

Nonagricultural income accounts for around 90 percent of total national income and the fluctuations in the total national income are, therefore, similar to those in nonagricultural income.

wages received by the nonfarm population but originating from agricultural sources. Agriculture's contribution, similarly, includes net farm rents and farm mortgage interest which goes to nonfarmers but excludes earnings of farmers from nonagricultural occupations and sources.

The figures presented here are therefore not to be taken as measures of the total income of the farm population and of the nonfarm population. But as measures of the national income arising from agriculture and from all sources outside agriculture, they should be fairly representative of trends in income of the farm and nonfarm population groups. Existing statistics do not permit a closer approach to the aggregate of individual incomes for the two groups. The income series in this study is presented for use until better measures of this nature are developed.

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[9] National income paid out is defined by the Department of Commerce in National Income in the United States, 1929–35, p. 1, as—"the sum of payments to or receipts by individuals as compensation for economic services rendered, whether in the form of labor, management, or the furnishing of capital."

Statistics are now being compiled in the Bureau of Agricultural Economics in an attempt to measure the amount of income which farmers receive from nonfarm sources. Few data of this nature are available at present.[10] Completion of this study of the Bureau of Agricultural Economics may make possible a better approximation of the portions of the total national income going to the nonfarm and the farm population than is now available. Such an approximation would not only be another forward step in developing better measures of domestic demand, but would permit more accurate appraisal of shifts in the well-being of individuals who make up the farm and nonfarm economic groups.

Assuming that the closest approach to the total current spendable income of individuals is the best measure of domestic demand, it follows that inclusion of extraordinary income, such as that paid to individuals on life-insurance policies, the soldiers' bonus, etc., would represent another forward step in the development of measures of domestic demand. Of course, income which goes to consumers in large amounts does not enter into ordinary consumptive channels as quickly as the income that flows to them regularly from month to month. This is true of such income as the heavy dividend disbursements of late 1936, as well as of other extraordinary income. The nonagricultural income included in this study is confined to that included in the income concept as defined by the Department of Commerce (see footnote 9), except that direct relief disbursements have been added. Veterans' bonus loans and payments are not included. Bonus loans in 1931 and cash payments in 1936 totaled $856,000,000 and $1,876,000,000, respectively. No doubt, such estraordinary income has some influence on food and textile purchases and considerable influence on the sale of more durable goods, such as automobiles, household goods, and building materials.

The remainder of this study is given over largely to details concerning the material and methods used in constructing the various income measures herein presented, reasons for the selection of the particular series used, and a presentation of the several income indexes.

NONAGRICULTURAL INCOME

The monthly index of nonagricultural income for the entire period 1919–37 is developed in two sections, one for the period 1929–37 and the other 1919–29. In view of the greater interest in the current figures and in view of the broader bases on which the current figures rest there is presented first the development of the monthly index of nonagricultural income from 1929 to 1937 and then the index from 1919 to 1929.

For the more recent period the starting point is an available monthly series of labor income prepared in the National Recovery Administration,[11] to which there have been added estimates of entrepreneurial and property income. For the earlier period the starting point is an available series of money income of urban consumers, including labor and property income, prepared in the Department of Agriculture and reproduced as appendix B of this study.

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[10] The value, both at common and at skilled labor rates on Federal-aid highways, of labor of farmers off the farm is estimated by Robert F. Martin on p. 43, Income in Agriculture, 1929–35, published October 1936 by the National Industrial Conference Board.

[11] DOROTHY E. SMITH, National Labor Income by Months, 1929–35, National Recovery Administration, March 1936.

This part of the publication deals with the steps taken in supplementing these available data and transforming them into a continuous monthly series of nonagricultural income to correspond with the annual series of national income paid out exclusive of that portion of the total which arises in agriculture.   These annual data, which for the 1929–36 period appear in table 2, are taken from Department of Commerce national income studies, except for minor differences explained in footnotes.

TABLE 2.—*National income paid out, excluding and including agriculture, by years, 1929–36*

[In millions of dollars; i. e., 000,000 omitted]

	1929	1930	1931	1932	1933	1934	1935	1936
Excluding Agriculture:								
Labor	$50,172	$46,084	$38,948	$30,395	$29,371	$33,666	$36,324	_____
Manufacturing	14,850	12,759	9,970	7,076	7,163	8,673	9,642	_____
Mining	1,636	1,408	997	674	672	869	888	_____
Construction	2,737	2,404	1,608	750	625	710	929	_____
Transportation [1]	4,991	4,524	3,825	2,943	2,749	2,974	3,171	_____
Utilities [2]	1,249	1,256	1,129	925	811	865	905	_____
Finance [3]	2,628	2,438	2,157	1,856	1,681	1,767	1,873	_____
Trade (wholesale and retail)	7,807	7,446	6,461	4,975	4,373	4,832	4,966	_____
Service [4]	6,128	5,686	4,852	3,811	3,433	3,870	4,184	_____
Government [5]	5,386	5,594	5,751	5,638	5,141	5,269	5,670	_____
Miscellaneous [6]	2,760	2,569	2,198	1,747	1,667	1,790	1,954	_____
Relief	_____	_____	_____	_____	1,056	2,047	2,142	_____
Work	_____	_____	_____	_____	619	1,389	1,313	_____
Direct [7]	_____	_____	_____	_____	437	658	829	_____
Entrepreneurial	7,984	7,570	6,869	5,532	5,009	5,466	5,751	_____
Property	13,453	13,176	11,231	8,950	7,674	7,948	8,113	_____
Interest	4,801	5,033	4,942	4,785	4,399	4,393	4,242	_____
Dividends	5,944	5,782	4,295	2,748	2,208	2,549	2,830	_____
Rents, Royalties [8]	2,558	2,159	1,711	1,166	898	913	990	_____
International [9]	150	202	283	251	169	93	51	_____
TOTAL NONAGRICULTURAL	71,609	66,830	57,048	44,877	42,054	47,080	50,188	56,315
AGRICULTURE [10]	7,023	6,102	4,656	3,485	3,323	3,751	4,228	4,800
GRAND TOTAL [11]	78,632	72,932	61,704	48,362	45,377	50,831	54,416	61,115

[1] Includes railway express and Pullman, also electric railways and motorbus, in addition to steam railroads and water transportation.   Does not include pipe lines and air transportation.
[2] Communication, electric light and power, and manufactured gas.
[3] Banking, insurance, and real estate.
[4] Professional, personal, recreation and amusement, domestic, business, and miscellaneous service.
[5] Federal, state, county, city, and public education.
[6] Includes transportation by air and pipe lines in addition to the miscellaneous classification of the Department of Commerce.
[7] Work-relief wages are included in Department of Commerce annual estimates, but direct relief is not included.
[8] Net agricultural rental payments are excluded from rents and royalties and added to agriculture.
[9] Net balance of international flow of property income.
[10] Net agricultural rentals are excluded from rents and royalties and added to agriculture.   Later in this study estimates of agriculture's contribution to national income, which differ from these, are presented. (See tables 9 and 10 and text for details.)
[11] As reported by the Department of Commerce, except that direct relief (see above) is added, beginning with 1933.   In the section of this study beginning on page 27 there is presented a different series of totals which include a revision and reclassification of the Department of Commerce estimates for agriculture.

SOURCE: 1929–35 U. S. Department of Commerce; 1936 preliminary estimates of Agricultural Adjustment Administration, continuing the Department of Commerce series.   Detailed estimates were made in 1936, but as these will differ somewhat from later Department of Commerce estimates, the details are not shown.

The portion of income labeled total nonagricultural, in table 2, is the amount distributed by months in this study.   It approximates the total realized ordinary income of individuals comprising the Nation's nonfarm population and represents a broad measure of money income of consumers and of domestic demand.

I. NONAGRICULTURAL INCOME, BY MONTHS, 1929-37

As will be seen by reference to table 2 income which makes up the nonagricultural total consists of three classes—labor, entrepreneurial, and property.

MONTHLY ESTIMATES OF LABOR INCOME

Sufficient current pay-roll data are now available, through regular official sources, to permit distribution of about 70 percent of all non-farm labor income on a monthly basis. Distribution of the remaining 30 percent may then be estimated from the trend of labor income for groups of a similar nature, or of the particular groups which largely determine the income of the remaining miscellaneous groups. For instance, labor income in service and recreational lines, for which no monthly data are available, may be assumed to follow rather closely the aggregate labor income for those groups for which monthly data are available. Since labor income at present comprises close to three-fourths of all nonagricultural income, it is obvious that satisfactory disposition of this segment of the total constitutes considerable progress toward monthly estimates of all nonagricultural income.

Bureau of Labor Statistics pay-roll indexes and reports are used for estimating labor income in:

1. Manufacturing.
2. Mining.
3. Construction.
4. Street railways and motorbus transportation.
5. Communication.
6. Electric light, power, and gas utilities.
7. Insurance.
8. Wholesale and retail trade.
9. Hotel, laundry, and dry cleaning service industries.
10. Federal Government pay rolls.
11. Work relief.

Interstate Commerce Commission reports are used in estimating labor income in railroad transportation.

Other reports used include Veterans' Administration compilations on pensions, W. P. A. reports on relief, and various other statistical series such as those on tonnage freight movement by water (Survey of Current Business).

Methods Employed

Except for minor adjustments, principally in line with revised annual totals, labor-income estimates contained in the N. R. A. study previously mentioned, are used for the 1929-34 period. Beginning with 1935 labor-income estimates have been brought up to date by use of data and methods essentially the same as employed in the original N. R. A. study. The principal exception to this is in construction, though a few minor divisions for which no current monthly data are available are also handled differently as explained below.

(1) A method of estimating labor income for the construction industry, more direct than that used in the original N. R. A. study, is employed in the interest of simplicity. An index of construction pay rolls is prepared from Bureau of Labor Statistics monthly reports on year-to-year and month-to-month changes. The annual average of such monthly indexes is then compared with Department of Commerce annual estimates of labor income in construction and any necessary adjustment made to bring the pay-roll index into proper relationship with these annual estimates. In extending estimates beyond the period covered by annual reports the computed monthly pay-roll indexes are adjusted by continuing the

trend shown by the adjusting factor during the preceding year. In view of the weaknesses of this method of estimating construction-labor income, a revision in method is contemplated on the basis of data made available by the Bureau of Labor Statistics since this study was prepared.

(2) In a few instances where monthly data covering some of the minor divisions of income for a given group are not readily available, totals are estimated from the trend of the more important items. For instance, labor income in railroad transportation, which in the N. R. A. study includes Pullman and express as well as all steam railroads, is estimated on the basis of I. C. C. pay-roll reports for class I roads, which account for about 88 percent of the total. The trend in pay rolls of county, city, and State governments (for which no monthly data are published) is assumed to continue to bear the relation to that in Federal payrolls shown from 1933 through 1935 as determined by a regression curve of Federal pay rolls on the total of State and local government pay rolls for this period. Any revision necessary to bring estimates for State and local governments into line with annual reports of the Department of Commerce will be made when the latter become available, while new data now being secured by the Bureau of Labor Statistics will be used as the samples become extensive enough to be considered representative of trends in the totals.

With these exceptions, the methods used in the N. R. A. labor study are very closely adhered to in bringing the monthly estimates up to date. Since sources and methods are presented in considerable detail in the N. R. A. study of March 1936, entitled "National Labor Income by Months, 1929–35", only brief comments covering the various groups are given here.

MANUFACTURING.—Wages and workmen's compensation are estimated by use of the monthly Bureau of Labor Statistics manufacturing pay-roll index (reported for 1 week of each month), after subtracting railroad repair shop wages. This adjusted factory pay-roll index is used both to distribute annual Department of Commerce estimates of wages and compensation by months through 1935, and as a means of keeping monthly figures up to date. The procedure consists of: (1) Multiplying the dollar weekly wage income in the 1923–25 base period by the Bureau of Labor Statistics total factory pay-roll index; (2) subtracting railroad repair shop dollar wages, obtained in the same manner; (3) multiplying the remainder by a factor which raises it from a weekly to a monthly figure and adds an allowance for workmen's compensation. This multiplying factor amounts to about 4.4; variations from year to year, which are negligible, are due to fluctuations in the relation of compensation to wage payments.

Changes in salaries are assumed to lag behind changes in wages and are estimated on the basis of a 12-month moving total of wages; the estimates being read from a regression curve of wages (12-month moving total) on salaries. Extension of the 12-month moving total of wages, as Bureau of Labor Statistics monthly pay-roll reports become available, permits current monthly readings of salaries from the regression curve.

MINING.—A composite monthly index is computed by weighting the several mining pay-roll indexes, reported monthly by the Bureau of Labor Statistics, by their respective importance in the total of mining labor income in the year 1929, as indicated in Department of Commerce national income studies. This weighted index is used to distribute, by months, the annual Department of Commerce estimates of total compensation of employees in mining industries; also to extend monthly estimates forward to cover later periods than are included in annual estimates of the Department of Commerce.

The monthly distribution of annual pay-roll data is accomplished by multiplying the weighted indexes for each month by a factor ob-

tained by dividing the 12-month total of the weighted index into the annual estimate of mining pay rolls. The multiplying factor for the latest year for which an annual estimate is available is also used in bringing the monthly estimates up to date.

TRANSPORTATION.—Interstate Commerce Commission monthly reports on actual pay rolls of class I railroads, including switching and terminal companies, are used as a basis for estimating monthly labor compensation of all steam railroads, Pullman, and express companies. The Interstate Commerce Commission monthly reports usually account for over 88 percent of the total. These reports are used both to distribute the annual labor income estimates of the Department of Commerce and to keep monthly estimates up to date.

Monthly pay rolls of the motor-bus and street-railway businesses are estimated by use of Bureau of Labor Statistics pay-roll indexes. The ratio of total estimated annual labor income in this industry to the total of the 12 monthly indexes for any given year is applied to the individual monthly indexes to get a dollar figure. Extension to later months than are covered by annual estimates are made by using the same ratio as applied during the latest year.

Compensation of workers employed in water transportation is assumed to fluctuate according to tonnage of goods handled, which is shown in statistics reported regularly in the Survey of Current Business.

UTILITIES.—The Bureau of Labor Statistics monthly pay-roll index covering the telephone and telegraph industries is used to distribute annual Department of Commerce estimates of labor income in the communication industry and to bring monthly estimates up to date. Electric light, power, and manufactured gas are handled in exactly the same manner. In both instances, the ratio of annual labor income, as estimated by the Department of Commerce, to the total of the 12 monthly Bureau of Labor Statistics indexes is applied to indexes for individual months to convert them into dollars. In extending to months not included in years covered by Department of Commerce income estimates, the ratio used to convert indexes to dollars for the latest year is retained.

FINANCE.—This group includes banking, insurance, and real estate. Bank pay rolls are estimated from the trend shown by the semi-annual report on wages and salaries of Federal Reserve member banks. Insurance pay rolls are estimated from the month-to-month changes shown in Bureau of Labor Statistics pay-roll reports covering this industry. The percentage gain or loss as compared with the preceding month is converted to dollars and added to or subtracted from the previous monthly estimate. The starting point for this method was December 1934, up to and including which month estimates contained in the N. R. A. labor income study were used.

Monthly payments to employees in real-estate businesses are estimated by use of the new monthly index of real-estate activity obtained from the Real Estate Analyst.[12] This index is used to distribute the annual Department of Commerce estimates of labor income in real estate and to extend monthly estimates forward. Revisions in line with future annual Department of Commerce estimates will be made.

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[12] REAL ESTATE ANALYST, Real Estate Analyst, Inc., St. Louis, Mo.

TRADE.—Pay-roll indexes for wholesale and retail trade as reported monthly by the Bureau of Labor Statistics are used to distribute annual labor income estimates of the Department of Commerce and to bring monthly estimates up to date, the same procedure being followed in converting indexes of pay rolls to dollars as explained under motorbus and street railways above.

GOVERNMENT.—(1) Federal pay rolls as reported monthly by the Bureau of Labor Statistics are added to pension payments, obtained directly from the Veterans' Administration, and the total is raised to allow for labor payments not included in the monthly reports. These additional payments added 7 percent, in 1935, to the totals obtained from monthly reports. Subsistence pay of military employees and payments to contract postal employees account for this difference. (2) State, county, and city pay rolls, which account for about one-third of total governmental pay rolls, are estimated, owing to lack of regular current reports, from a correlation chart; monthly estimates being read from a regression curve of Federal pay rolls on the total pay rolls for State and local governments for the period of recovery from 1933 through 1935. The proper corrections will be made as additional annual estimates become available. The Bureau of Labor Statistics is now obtaining monthly reports from several States. The total of pay rolls for these States may soon justify its use in estimating the aggregate for all States; steps are now being taken toward analyzing these unpublished data. Some city and county governments are also reporting monthly pay rolls to the Bureau of Labor Statistics but not in sufficient number, as yet, to be at all representative of the country as a whole. (3) Pay rolls in public education remain about constant from October (the first full month of each educational year) through the following May (the last full month), according to findings of the N. R. A. from a study of National Education Association and Interior Department data. In each month of this period payments amount to about 10.2 percent of total payments for the school year. September payments, at the start of the new year, amount to slightly over 8 percent, the following June to nearly 8, while in July and August (at the end) payments amount to about 1¼ percent each. (See p. 16 of the N. R. A. labor income study for further details.) Labor income in education is distributed monthly by use of this seasonal formula. Extensions are carried forward monthly on the basis of estimated changes in annual salary schedules based on direct contact with the Division of Research, National Education Association, and the Statistical Division of the Office of Education, Interior Department.

SERVICE AND MISCELLANEOUS.—Except for laundry, dyeing and dry cleaning, and hotels, which are covered by Bureau of Labor Statistics pay-roll reports, service and miscellaneous labor payments are assumed to follow the course of income of other groups on which such labor is assumed to be dependent as follows: (1) Business service is estimated on the basis of labor income in trade and finance; (2) labor income in professional and domestic service, amusement, and miscellaneous activities, is estimated on basis of trend in all other labor income plus farm cash income from sales.

WORK RELIEF WAGES AND DIRECT RELIEF DISBURSEMENTS.— Monthly Bureau of Labor Statistics reports on wage payments to emergency workers, adjusted to eliminate duplications, and adminis-

trative pay rolls of local relief agencies, are combined in estimating total relief wage payments. Monthly figures obtained in this manner were about 10 percent below the Department of Commerce total estimate of relief wages in 1935. The adjustment necessary to bring monthly data up to the Department of Commerce annual estimate for the latest year is carried forward in extending monthly estimates.

Direct relief disbursements are estimated currently on the basis of apparent trends as secured by direct contact with the W. P. A. and are revised as published monthly figures become available.

<div align="center">SEASONAL ADJUSTMENT OF LABOR INCOME</div>

Indexes of seasonal variation of nonfarm labor income, exclusive of relief, were determined by the method of ratios to trend. The ratio of income as estimated for each month to trend was computed for the 7-year period, 1929–35. The average of these ratios for corresponding months of the trend are used as seasonal correcting factors. The seasonally corrected monthly totals are used as the labor portion, exclusive of relief, of monthly nonagricultural income.

<div align="center">NONAGRICULTURAL INCOME OTHER THAN LABOR INCOME, BY MONTHS,
1929-37</div>

Nonlabor items constitute less than 30 percent of aggregate nonfarm national income. Nonlabor income consists of entrepreneurial withdrawals and of property income. The latter includes interest, dividends, and net rents and royalties. At the outset it may as well be understood that adequate monthly statistics with which to distribute some of these groups of income are absent. Therefore certain arbitrary assumptions as to probable behavior must be made. However, as will be explained below, these assumptions can be made apparently without danger of sufficient error to invalidate trends, and therefore may be defended on the grounds that without monthly distribution of these groups of income no close approximation of total nonfarm income would now be available.

<div align="center">ENTREPRENEURIAL INCOME</div>

Entrepreneurial withdrawals from business enterprises represent payments to individual owner operators for their labor, management, and capital. Since property income is less than one-quarter as great as labor income, the bulk of entrepreneurial withdrawals may be regarded as payment for labor and management; that is, similar to wages and salaries. Annual estimates of the Department of Commerce from 1929 through 1935 show that labor and entrepreneurial income fluctuate similarly but with entrepreneurial fluctuating somewhat less violently than labor income. Since no monthly data are available from which a direct distribution of entrepreneurial income is possible, labor income (seasonally corrected) is used as a basis for distributing the annual estimates of entrepreneurial withdrawals into monthly figures. This is done by assuming that the annual ratio of entrepreneurial to labor income applies to midyear (June) and that the changes shown from year to year take place gradually. Monthly estimates made by use of these ratios are, of course, adjusted to proper

annual totals. Extension beyond the period covered by annual esti-
mates is made by continuing the trend shown by the ratio of entre-
preneurial to labor income for the latest period. Whenever it becomes
clear that a change in direction of labor income is developing, it is of
course necessary to modify this procedure, in order that the error in
current entrepreneurial income estimates may be held to a minimum.

The generally slow rate of change in the ratio of entrepreneurial to
labor income and the fact that entrepreneurial is only 11 to 12 percent
of total nonagricultural income, make it extremely unlikely that
sufficient error will ever develop in extending estimates of the former
beyond the period covered by annual data, to distort the trend of
total nonagricultural income or to materially affect the actual size of
the total monthly figure. Since the labor income used as the basis
for distributing entrepreneurial is corrected for seasonal, no seasonal
correction is necessary for the latter.

PROPERTY INCOME

DIVIDENDS are distributed monthly on the basis of the ratio of
Moody's annual rate of payments to the annual totals estimated by
the Department of Commerce in its national income studies. Since
the ratio of Moody's estimates to those of the Department of Com-
merce are not constant, the average annual ratio is assumed to apply
to midyear (June) and monthly ratios are then secured by inter-
polation on a straight line. These monthly ratios applied to Moody's
annual rate of payments, which are reported for each month, give
seasonally corrected monthly dividend payments. Extension beyond
the period covered by annual estimates is made by continuing the
trend in effect during the latest year for which an annual estimate is
available. Some modification of estimates obtained in this manner
was necessary late in 1936, when numerous extra and special disburse-
ments were made to avoid heavy taxes on undistributed profits.
Other available monthly dividend series—those of the New York
Times and the New York Journal of Commerce—were used as a guide
in estimating dividends for these months. Corrections necessary to
bring the monthly dividend series into agreement with later Depart-
ment of Commerce annual estimates will be made when such estimates
become available. Dividends account for 5 to 8 percent of total
nonagricultural income.

INTEREST.—Distribution of annual estimates of nonagricultural
interest payments by use of monthly data now available does not
give results which appear reasonable. Therefore, on the assumption
that the aggregate rate of such payments changes slowly, a monthly
distribution was obtained by plotting the annual average monthly
rate in midyear, drawing in a smoothed curve of the apparent trend
and reading monthly figures from this curve. This method of dis-
tributing annual totals by months automatically eliminates any
seasonal variation. To extend monthly estimates beyond the period
covered by latest annual figures, the probable trend suggested by the
curve for recent years is continued.

Though intercorporate interest and dividend payments have been
eliminated, so far as possible, from the Department of Commerce,
estimates of total payments, the amounts paid to savings banks,
building and loan associations, life-insurance companies, and chari-
table and educational foundations are included. Some of the interest

and dividends therefore do not represent current income of individuals.

NET RENTS AND ROYALTIES.—The same method of distributing the annual totals into monthly estimates is followed as for interest, explained above. Interest and net rents and royalties together constitute 8 to 10 percent of nonagricultural income.

The foregoing explanation of the routine methods now employed in distributing the annual estimates of nonagricultural income by months applies only to the period beginning with 1929, this being as far back as Department of Commerce national-income estimates extend.

Many problems arise in computing monthly-income estimates which cannot be handled by routine procedure. These may require only temporary abandonment of the ordinary procedure followed; but permanent abandonment of methods previously followed and adoption of improved technique, in connection with some particular income series, will from time to time be advisable. Only in this manner can full advantage be taken of improved basic statistics.

II. NONAGRICULTURAL INCOME, BY MONTHS, 1919–29

ANNUAL DATA, 1909–37

National income "paid out" estimates of the Department of Commerce, from which agriculture's contribution has been excluded as explained above, are available only from 1929. But King's annual national-income estimates of "Income realized from production" for earlier years afford a basis for a backward extension of the nonagricultural income series. As will be noted in table 3, both King's and the Department of Commerce estimates are available for the year 1929. King's series, as shown in table 3, does not include some items—"Residential rents", "Mortgage interest on residential property", and "Net balance of international flow of property incomes"—which are included in the Department of Commerce estimates. However, to adjust for these differences would have practically no effect on final results and, if a continuous series of dollar figures is to be had, would necessitate computation of new and unpublished estimates, prior to 1929, by use of index numbers. This would cause more confusion than such refinements appear to justify. Though their content is not exactly identical, as adjusted in this study to eliminate agricultural income, the totals of the two series differ, in 1929, by less than one-quarter of 1 percent. Thus King's estimates through 1928 and those of the Department of Commerce beginning with 1929 are used to form a continuous annual series as shown in the final column of table 3.

TABLE 3.—*National income, by years, 1909–36*

[In millions of dollars; i. e., 000,000 omitted]

	Income realized from production [1]			Income paid out [2]			Nonagricultural income [4]
	Total	Agriculture	Total, less agriculture	Total	Agriculture [3]	Total, less agriculture [3]	
1909	$26,430	$4,988	$21,442				$21,442
1910	28,024	5,218	22,806				22,806
1911	28,376	4,815	23,561				23,561
1912	30,358	5,294	25,064				25,064
1913	31,909	5,133	26,776				26,776
1914	31,669	5,081	26,588				26,588
1915	33,083	5,488	27,595				27,595
1916	38,884	6,631	32,253				32,253
1917	46,575	9,188	37,387				37,387
1918	54,784	11,205	43,579				43,579
1919	59,550	12,182	47,368				47,368
1920	65,928	11,057	54,871				54,871
1921	55,430	6,967	48,463				48,463
1922	57,926	7,300	50,626				50,626
1923	65,949	8,026	57,923				57,923
1924	68,461	8,325	60,136				60,136
1925	73,067	9,089	63,978				63,978
1926	74,954	8,214	66,740				66,740
1927	76,007	8,371	67,636				67,636
1928	77,291	8,109	69,182				69,182
1929	79,702	8,254	71,448	$78,632	$7,023	$71,609	71,609
1930				72,932	6,102	66,830	66,830
1931				61,704	4,656	57,048	57,048
1932				48,362	3,485	44,877	44,877
1933				45,377	3,323	42,054	42,054
1934				50,831	3,751	47,080	47,080
1935				54,416	4,228	50,188	50,188
1936 [5]				61,115	4,800	56,315	56,315

[1] King's estimates through 1925 and an extension of them by the National Bureau of Economic Research, 1926–29. (See Brookings Institution publication, America's Capacity to Consume, p. 152.)

[2] Department of Commerce estimates, National Income in the United States, 1929–35, plus direct relief from 1933.

[3] Reported figures adjusted to include net farm rents with agriculture rather than with rents and royalties, as shown in the Department of Commerce National Income study. The agricultural figures shown here are used only as a means of eliminating agriculture from the total national income. They are not used in a later section of this study covering agriculture's contribution to national income.

[4] The series used in this study is composed of King's series through 1928 and Department of Commerce estimates beginning with 1929, as explained in the 3 preceding footnotes.

[5] Preliminary estimate.

Only one income series each for the periods 1909–29 and 1929–37 has been presented in this study. However, Department of Commerce income estimates contain two totals: (1) Income paid out, which excludes business savings (positive or negative); and (2) income produced, which includes business savings (positive or negative). Similarly, King's estimates are grouped in different ways so as to form four national totals [13] (1) realized income from production, which excludes business savings (positive or negative) and income which does not arise from production activities (imputed income, residential rents, interest on personal loans and residential mortgages, etc.); (2) total realized income, which excludes only business savings; (3) production income, which adds business savings to realized income from production; and (4) all income, which adds business savings to all realized income.

A certain amount of confusion naturally exists because of these different national income totals; but economic analyses cover such a wide range of subjects and the objectives differ so greatly that complete standardization of income concepts is probably not desirable even if possible.

[13] AMERICA'S CAPACITY TO CONSUME. Brookings Institution, 1934, p. 152.

Any one of these various totals might be selected as best fitted to a particular problem. Income paid out, as estimated by the Department of Commerce from 1929, and income realized from production, as estimated by Brookings Institution by use of King's series for years prior to 1929 have been selected for this study as the nearest approach of the various published totals to the current income actually available to individuals. Thus, for use in demand analyses the totals selected for this study may be regarded as approximations of the current buying power of the nonfarm population realized from productive efforts and investments.

A comparison of indexes based on King's four income totals mentioned above, shows that growth over the entire period (1909–29) covered by his estimates was about the same for each series.

	1909	1919	1921	1929
Realized production income	100	225	210	302
Total realized income	100	223	214	303
Production income	100	230	190	296
All income	100	227	196	298

Despite close agreement as to growth from 1909 to 1919 and from 1909 to 1929, considerable difference existed in 1921 between production income and the realized income of individuals; and an even more pronounced and prolonged disparity existed between 1930 and 1935, according to Department of Commerce studies. During each of the 6 years 1930 through 1935, income paid out exceeded income produced. It is such differences as these that make advisable the careful selection of the income series best adapted to the character of analysis to be undertaken. The shorter the period covered by the analysis the greater the need for selecting the income series to be used. For long periods, as illustrated above, growth in the national income is about the same without respect to the series selected.

Obviously, in attempting to determine the prospective price and demand outlook for farm and food products, an approximation of income consumers actually receive is needed. This, as previously stated, is the reason that "income paid out" rather than "income produced" has been selected as the series most generally useful for price analyses in the Department of Agriculture.

MONTHLY NONAGRICULTURAL INCOME ESTIMATES, 1919–29

For estimating monthly nonagricultural income for the period 1919–29 to supplement the monthly estimates for 1919–37 there is available the monthly index developed in the unpublished study, Income of Urban Consumers, prepared by O. V. Wells and L. H. Bean, Department of Agriculture, in 1933; this study is reproduced in detail in appendix B. The Wells-Bean index of urban consumer income (1919–33) is based on a weighted composite of seasonally corrected indexes of labor income for eight important groups of workers (factory, construction, railroad, mining, trade, service, utility, and Government) and a monthly index of interest and dividend payments. The weights used for combining these indexes, in arriving at the urban-consumer-income index, were based roughly on the relative importance of each group in the total dollar amount of income represented by all the groups, during the 1923–25 base period used in the study.

The various steps taken in distributing, by months, King's annual estimates by use of the Wells-Bean urban-consumer-income index,

are illustrated in tables 4 to 6, and the index of nonagricultural income obtained in this manner is compared graphically with the Wells-Bean urban-consumer-income index in chart X. Although nonagricultural income was distributed monthly by use of the Wells-Bean index from 1919 through 1933, as explained below, the monthly indexes obtained in this manner are used in the final index of nonagricultural income only through 1928.
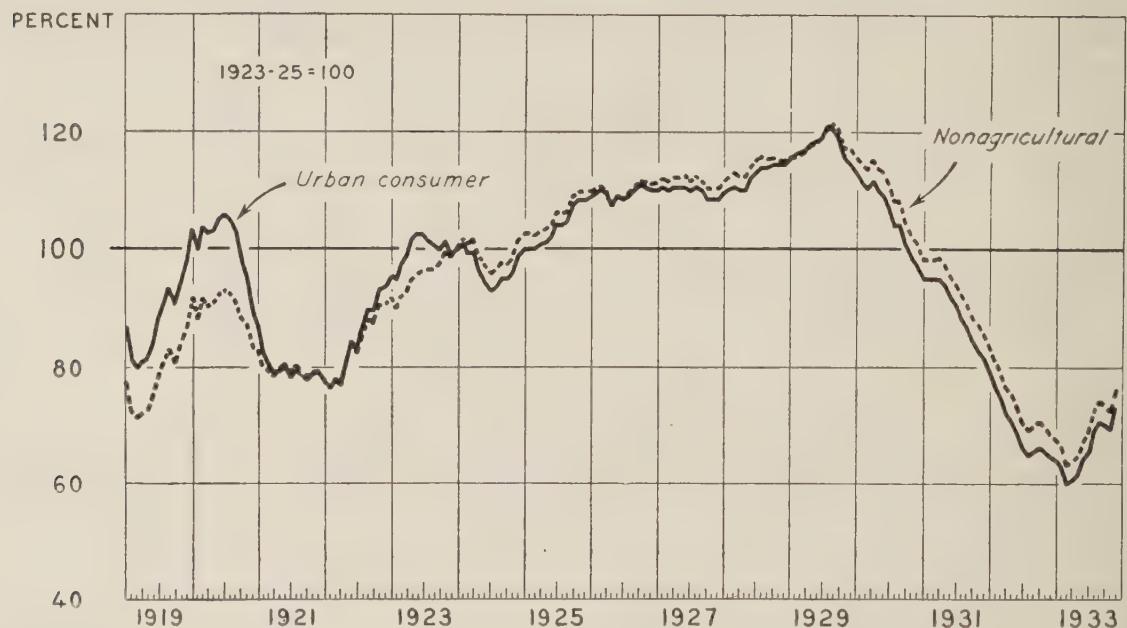
CHART X.—URBAN CONSUMER INCOME AND NONAGRICULTURAL INCOME, BY MONTHS, ADJUSTED FOR SEASONAL VARIATION, 1919–33

Except for two periods there is very little difference between the Wells-Bean index of incomes of urban consumers and the index of nonagricultural income derived from estimates of national income and the Wells-Bean monthly index.

As the first step toward converting annual estimates to a monthly basis, ratios of King's annual estimates, excluding agriculture, to those of the Wells-Bean study were computed as shown in table 4.

TABLE 4.—*Indexes of urban consumer income and of nonagricultural income, by years, 1919–33*

	Urban consumer income [1] (1923–25= 100)	Nonagricultural income [2] (1923–25= 100)	Ratio nonagricultural to urban consumer [3]		Urban consumer income [1] (1923–25= 100)	Nonagricultural income [2] (1923–25= 100)	Ratio nonagricultural to urban consumer [3]
			Percent				*Percent*
1919	87. 6	78. 1	89. 1	1927	109. 8	111. 5	101. 5
1920	101. 0	90. 4	89. 5	1928	112. 2	114. 0	101. 6
1921	80. 3	79. 9	99. 4	1929	117. 5	118. 0	100. 4
1922	84. 4	83. 4	98. 8	1930	106. 4	110. 1	103. 5
1923	99. 7	95. 5	95. 8	1931	90. 1	94. 0	104. 4
1924	96. 9	99. 1	102. 3	1932	69. 5	74. 0	106. 5
1925	103. 4	105. 4	102. 0	1933	65. 9	69. 3	105. 2
1926	109. 5	110. 0	100. 5				

[1] Average of monthly estimates of O. V. Wells and L. H. Bean in table 2 of a manuscript reproduced in appendix B. The indexes as shown in the Wells-Bean study are rounded to the nearest half point and therefore differ slightly from the monthly averages used here.

[2] Based on "Realized income from production of goods and services", excluding agriculture, for 1919–28, as estimated by the Brookings Institution, from King's national income studies. (See America's Capacity to Consume, p. 152.) For 1929–33 the indexes are based on "National income paid out", excluding agriculture, and net farm rental payments as estimated by the Department of Commerce. (See National Income in the United States, 1929–35.) The only year for which both income series are available is 1929; they differ by less than ¼ of 1 percent in that year.

[3] Ratios computed before rounding income indexes to one decimal.

These annual relationships were assumed to apply to midyear, and similar ratios were computed for each month by straight-line interpolation. The results are shown in the first part of table 5, "Relation of nonagricultural income to urban consumer income, 1919–33." In the second part of table 5 are shown results of adjusting and revising the ratios obtained by interpolation so as to get proper annual totals and to eliminate any obvious shortcomings of the first computation.

TABLE 5.—*Relation of nonagricultural income to urban consumer income, 1919–33*

A—PERCENTAGES BASED ON INDEX NUMBERS, 1923–25=100 [1]

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Aver.[2]
1919	89.0	89.0	89.0	89.0	89.0	89.1	89.1	89.1	89.2	89.2	89.2	89.3	89.1
1920	89.3	89.3	89.4	89.4	89.4	89.5	89.9	90.7	91.6	92.4	93.2	94.0	90.7
1921	94.9	95.7	96.5	97.3	98.2	99.0	99.4	99.3	99.3	99.2	99.2	99.1	98.1
1922	99.1	99.0	99.0	98.9	98.9	98.8	98.7	98.4	98.2	97.9	97.7	97.4	98.5
1923	97.2	96.9	96.7	96.4	96.2	95.9	96.1	96.6	97.2	97.7	98.2	98.8	97.0
1924	99.3	99.9	100.4	100.9	101.5	102.0	102.3	102.3	102.2	102.2	102.2	102.2	101.5
1925	102.1	102.1	102.1	102.1	102.0	102.0	101.9	101.8	101.7	101.6	101.4	101.3	101.8
1926	101.2	101.0	100.9	100.8	100.7	100.6	100.5	100.6	100.7	100.8	100.9	101.0	100.8
1927	101.0	101.1	101.2	101.3	101.4	101.5	101.5	101.5	101.5	101.5	101.5	101.5	101.4
1928	101.6	101.6	101.6	101.6	101.6	101.6	101.6	101.4	101.3	101.2	101.1	101.0	101.4
1929	100.9	100.8	100.7	100.6	100.5	100.5	100.5	100.8	101.0	101.3	101.6	101.8	100.9
1930	102.1	102.3	102.6	102.9	103.1	103.4	103.5	103.6	103.7	103.8	103.8	103.9	103.2
1931	104.0	104.1	104.1	104.2	104.3	104.4	104.5	104.7	104.8	105.0	105.2	105.4	104.6
1932	105.5	105.7	105.9	106.1	106.2	106.4	106.4	106.3	106.2	106.1	106.0	105.9	106.1
1933	105.8	105.7	105.6	105.5	105.4	105.3	105.1	105.0	104.9	104.8	104.7	104.6	105.2

B—RATIOS ADJUSTED TO PROPER ANNUAL TOTALS [3]

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Aver.
1919	89.2	89.2	89.2	89.1	89.1	89.1	89.1	89.0	89.0	89.0	89.0	89.0	89.1
1920	88.9	88.8	88.7	88.6	88.5	88.3	88.4	88.7	89.5	90.6	92.0	93.5	89.5
1921	95.0	97.0	98.1	99.1	100.5	100.6	101.0	100.9	100.6	100.4	100.2	100.0	99.4
1922	100.0	99.9	99.8	99.7	99.6	99.4	99.2	98.7	98.1	97.7	97.2	96.8	98.8
1923	96.1	95.2	94.4	93.9	93.8	93.7	94.3	95.6	96.5	97.8	98.6	99.5	95.8
1924	100.4	100.9	101.4	102.0	102.6	103.1	103.2	103.2	102.9	102.8	102.7	102.5	102.3
1925	102.5	102.5	102.3	102.3	102.3	102.2	102.1	102.0	101.8	101.6	101.3	101.3	102.0
1926	100.8	100.6	100.5	100.4	100.3	100.2	100.1	100.3	100.5	100.5	100.7	100.9	100.5
1927	101.2	101.3	101.4	101.4	101.4	101.5	101.5	101.5	101.5	101.7	101.7	101.7	101.5
1928	101.8	102.0	102.2	102.2	101.2	102.1	101.9	101.6	101.3	101.0	100.7	100.4	101.6
1929	100.1	99.7	99.7	99.7	99.7	99.7	100.0	100.4	100.8	101.3	101.6	102.2	100.4
1930	102.5	102.8	103.0	103.2	103.5	103.8	103.8	103.9	104.0	104.1	103.9	103.8	103.5
1931	103.8	103.9	103.9	104.0	104.1	104.2	104.3	104.5	104.6	104.9	105.1	105.4	104.4
1932	105.7	106.1	106.4	106.7	106.8	107.0	107.0	106.8	106.7	106.5	106.3	105.9	106.5
1933	105.8	105.7	105.6	105.5	105.4	105.3	105.1	105.0	104.9	104.8	104.7	104.6	105.2

[1] Percentages are obtained by assuming that the annual ratio of King's income estimates converted to a 1923–25 base (U. S. Department of Commerce estimates after 1928), to the Wells-Bean estimates of urban consumer income (1923–25=100) apply to midyear and that changes in the ratios from year to year take place gradually each month. These monthly ratios are, therefore, obtained by straight-line interpolation between the annual ratios placed at midyear, i. e., placed between June and July.

[2] A, the average of interpolated monthly ratios, rather than the computed ratios from annual data. B, the interpolated ratios (see A) adjusted so as to give the same annual averages as are obtained by use of annual data (see table 4).

[3] For explanation of adjustments see text.

A monthly distribution of King's annual estimates is obtained by multiplying the Wells-Bean monthly indexes by these adjusted ratios. Both series of income indexes are given in table 6 entitled "Indexes of urban consumer income and of nonagricultural income, by months, adjusted for seasonal variation, 1919–33", and are shown in chart X.

TABLE 6.—*Indexes of urban consumer income and of nonagricultural income, by months, adjusted for seasonal variation, 1919–33*

[1923–25=100]

A.—URBAN CONSUMER INCOME [1]

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Av.
1919	87.0	81.5	80.0	81.0	81.5	84.0	88.5	91.0	93.5	91.0	94.5	98.0	87.5
1920	103.5	100.0	103.5	102.5	103.0	105.0	105.5	104.5	102.5	98.0	95.0	89.5	101.0
1921	87.5	83.0	81.0	79.5	79.5	80.0	78.5	79.5	79.0	78.0	79.0	79.5	80.5
1922	77.5	77.0	78.0	77.5	81.0	84.5	83.5	86.5	90.0	90.0	93.5	94.0	84.5
1923	95.5	95.0	97.5	99.0	101.5	102.5	102.5	101.5	100.5	100.0	101.0	99.5	99.5
1924	100.0	100.5	99.5	99.5	97.0	94.5	93.0	93.5	95.0	95.0	96.0	99.0	97.0
1925	100.0	100.0	100.0	100.5	101.0	102.0	104.0	104.0	104.5	107.5	108.5	108.5	103.5
1926	109.0	109.5	110.0	109.5	107.5	109.0	108.5	109.0	110.0	111.0	110.5	110.0	109.5
1927	110.0	110.5	110.0	110.5	110.5	110.5	110.0	110.5	110.0	108.5	108.5	108.5	110.0
1928	109.5	110.0	110.5	110.0	110.0	112.0	113.0	114.0	114.0	114.5	114.5	114.5	112.5
1929	115.5	116.0	116.5	117.0	118.0	118.5	119.0	120.5	120.5	119.0	115.5	114.5	117.5
1930	113.0	111.5	110.5	111.5	110.0	109.0	107.0	104.0	104.0	100.5	98.5	97.5	106.5
1931	95.0	95.0	95.0	95.0	94.0	92.0	90.5	88.5	87.0	84.5	83.0	81.5	90.0
1932	79.0	76.5	74.5	72.0	70.5	68.5	66.0	65.0	65.5	66.0	65.5	64.5	69.5
1933	64.0	63.0	60.0	60.5	61.5	64.0	65.5	69.0	70.5	70.0	69.5	73.0	66.0

B.—NONAGRICULTURAL INCOME [2]

(B, table 5, multiplied by A, table 6)

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Av.
1919	77.6	72.7	71.4	72.2	72.6	74.8	78.9	81.0	83.2	81.0	84.1	87.2	78.1
1920	92.0	88.8	91.8	90.8	91.2	92.7	93.3	92.7	91.7	88.8	87.4	83.7	90.4
1921	83.1	80.5	79.5	78.8	79.9	80.4	79.3	80.2	79.5	78.3	79.2	79.5	79.9
1922	77.5	76.9	77.8	77.3	80.7	84.0	82.8	85.4	88.3	87.9	90.9	91.0	83.4
1923	91.8	90.4	92.0	93.0	95.2	96.0	96.7	97.0	97.0	97.8	99.6	99.0	95.5
1924	100.4	101.4	100.9	101.5	99.5	97.4	96.0	96.5	97.8	97.7	98.6	101.5	99.1
1925	102.5	102.5	102.3	102.8	103.3	104.2	106.2	106.1	106.4	109.2	109.9	109.9	105.4
1926	109.9	110.2	110.6	109.9	107.8	109.2	108.6	109.3	110.5	111.6	111.3	111.0	110.0
1927	111.3	111.9	111.5	112.0	112.1	112.2	111.7	112.2	111.7	110.3	110.3	110.3	111.5
1928	111.5	112.2	112.9	112.4	112.4	114.3	115.2	115.8	115.5	115.6	115.3	115.0	114.0
1929	115.6	115.6	116.2	116.6	117.6	118.1	119.0	121.0	121.5	120.5	117.4	117.0	118.0
1930	115.8	114.6	113.8	115.1	113.8	113.1	111.1	108.1	108.2	104.6	102.3	101.2	110.1
1931	98.6	98.7	98.7	98.8	97.9	95.9	94.4	92.5	91.0	88.6	87.2	85.9	94.0
1932	83.5	81.2	79.3	76.8	75.3	73.3	70.6	69.4	69.9	70.3	69.6	68.3	74.0
1933	67.7	66.6	63.4	63.8	64.8	67.4	68.8	72.5	74.0	73.4	72.8	76.4	69.3

[1] These indexes were prepared in December 1933 by O. V. Wells and L. H. Bean of the Bureau of Agricultural Economics. See appendix B for further details.

[2] A monthly distribution of annual estimates of national income, excluding agriculture, on basis of Wells-Bean indexes of urban consumer income. These annual indexes are based on King's income series, "Income Realized from Production of Goods and Services", minus agriculture, p. 152, America's Capacity to Consume, through 1928 and U. S. Department of Commerce estimates of national income "paid out", minus agriculture and net farm rental payments to nonfarm landlords, after 1928. These indexes are obtained by multiplying the indexes in table 5b, by those in table 6a, derivation of which indexes is explained in footnotes to tables 4 and 5 and in the text.

In adjusting the ratios obtained by straight-line interpolation from midyear to midyear, certain assumptions as to the most probable turning points were necessary. For example, by referring to the tables and the chart mentioned above, it will be noted that annual fluctuations in the annual Wells-Bean income series, particularly prior to 1925, were considerably more violent than in King's estimates. Thus it was assumed, in adjusting the 1919–20 computed monthly ratios (of King to Wells-Bean), that the extreme fluctuations shown by the Wells-Bean monthly indexes were also probably too violent. Consequently, adjustments from March 1919 to June 1920, when the monthly index of urban consumer income was rising sharply, were made so that this rise would be both smaller and less abrupt; similarly, after income began to fall late in 1920 the computed ratios were so adjusted as to modify the decline somewhat. Such adjustments as these, in addition to modifying the extreme fluctuations shown by the computed monthly ratios, also brought the annual averages of the monthly indexes into agreement with computed yearly ratios as shown

in table 4. Adjustments in the computed ratios throughout the period covered by the Wells-Bean estimates were made in this manner. Corrections were considerable through 1924 after which shifts in the relation of King's estimates (Department of Commerce estimates after 1928) to the Wells-Bean series were not great, as will be seen by reference to table 4 and to chart X.

The question as to which income series is the more reliable measure of year-to-year fluctuations in the early years when they are not in close agreement, must await some real attempt to improve on King's early estimates. Until such an attempt is made, nothing is to be gained by introducing still another national income total among the many now available. Furthermore, the Wells-Bean index is not based on the total of nonagricultural income, being intended only as a rough measure of that portion of the income of the urban population used by recipients for current expenditure. The indexes obtained from a monthly distribution of King's annual estimates (1923–25 = 100) have been converted to a 1924–29 base and joined, in 1929, with those based on a detailed distribution of Department of Commerce estimates, to form a continuous series from 1919. These monthly indexes are contained in table 7, entitled "Indexes of nonagricultural income, by months, adjusted for seasonal variation, 1919–37." Similar seasonally corrected dollar estimates are shown on chart IX, together with agriculture's contribution to national income and total national income.

Dollar estimates of nonagricultural income, by months, adjusted for seasonal variation, 1929–37, are shown in table 8.

TABLE 7.—*Indexes of nonagricultural income, by months, adjusted for seasonal variation, 1919–37*

[1924–29 = 100[1]]

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1919	70.8	66.3	65.1	65.8	66.2	68.2	71.9	73.9	75.9	73.9	76.7	79.5	71.2
1920	83.9	81.0	83.7	82.8	83.2	84.5	85.1	84.5	83.6	81.0	79.7	76.3	82.4
1921	75.8	73.4	72.5	71.9	72.9	73.3	72.3	73.1	72.5	71.4	72.2	72.5	72.8
1922	70.7	70.1	70.9	70.5	73.6	76.6	75.5	77.9	80.5	80.2	82.9	83.0	76.0
1923	83.7	82.4	83.9	84.8	86.8	87.5	88.2	88.4	88.4	89.2	90.8	90.3	87.0
1924	91.5	92.5	92.0	92.6	90.7	88.8	87.5	88.0	89.2	89.1	89.9	92.6	90.4
1925	93.5	93.5	93.3	93.7	94.2	95.0	96.8	96.7	97.0	99.6	100.2	100.2	96.1
1926	100.2	100.5	100.9	100.2	98.3	99.6	99.0	99.7	100.8	101.8	101.5	101.2	100.3
1927	101.5	102.0	101.7	102.1	102.2	102.3	101.8	102.3	101.8	100.6	100.6	100.6	101.6
1928	101.7	102.3	102.9	102.5	102.5	104.2	105.0	105.6	105.3	105.4	105.1	104.9	104.0
1929	105.2	106.3	106.2	106.2	106.9	107.7	109.4	110.4	109.4	109.1	107.5	107.0	107.6
1930	105.8	105.3	103.6	103.4	103.0	102.2	101.5	99.1	97.7	95.8	94.4	93.5	100.4
1931	92.4	91.9	90.3	89.5	88.2	87.0	86.2	83.8	81.8	79.8	79.4	78.4	85.7
1932	76.8	74.9	72.7	70.5	68.8	66.4	64.4	63.0	63.2	63.3	63.1	62.2	67.4
1933	62.7	61.6	59.3	58.9	60.5	62.0	62.8	64.3	65.4	65.9	66.4	68.4	63.2
1934	71.2	70.6	70.8	70.3	70.7	70.8	70.3	70.5	69.5	70.7	71.3	72.2	70.7
1935	73.8	74.4	73.9	74.2	73.9	74.1	74.1	74.9	76.3	77.3	78.0	80.0	75.4
1936	79.7	79.4	79.9	80.8	82.1	83.3	84.8	85.2	85.9	87.3	90.0	97.2	84.6
1937	87.8	88.8	89.7	91.1	91.4	------	------	------	------	------	------	------	------

[1] Nonagricultural income during the 1924–29 base period averaged approximately $5,546,000,000 per month. Indexes from 1919–28 are based on a monthly distribution of King's annual nonagricultural "Realized" income series (p. 152, America's Capacity to Consume); 1929–35 based on a monthly distribution of U. S. Department of Commerce income "paid out" estimates, excluding agriculture and net farm rental payments. Extensions beyond 1935 are computed by use of the same monthly income series used in distributing annual estimates, for the 1929–35 period, to a monthly basis. Full details of the methods employed in arriving at the monthly estimates on which these indexes are based are given in the text.

TABLE 8.—*Nonagricultural income, by months, adjusted for seasonal variation, 1929–37*

[In millions of dollars, i. e., 000,000 omitted]

1929

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
Labor	4,081	4,133	4,124	4,120	4,153	4,189	4,267	4,312	4,261	4,237	4,161	4,134	50,172
Entrepreneurial	641	650	651	651	658	665	680	688	682	680	670	668	7,984
Property	1,110	1,113	1,113	1,117	1,118	1,121	1,120	1,125	1,126	1,131	1,128	1,131	13,453
Total	5,832	5,896	5,888	5,888	5,929	5,975	6,067	6,125	6,069	6,048	5,959	5,933	71,609

1930

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
Labor	4,074	4,048	3,968	3,962	3,952	3,920	3,890	3,783	3,719	3,640	3,582	3,546	46,084
Entrepreneurial	656	654	642	643	642	640	639	625	618	609	602	600	7,570
Property	1,139	1,135	1,134	1,127	1,119	1,105	1,099	1,088	1,079	1,062	1,050	1,039	13,176
Total	5,869	5,837	5,744	5,732	5,713	5,665	5,628	5,496	5,416	5,311	5,234	5,185	66,830

1931

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
Labor	3,498	3,481	3,424	3,394	3,349	3,305	3,274	3,172	3,087	3,007	2,995	2,962	38,948
Entrepreneurial	600	600	595	594	589	585	581	565	551	538	538	533	6,869
Property	1,028	1,013	990	975	953	933	923	912	898	882	872	852	11,231
Total	5,126	5,094	5,009	4,963	4,891	4,823	4,778	4,649	4,536	4,427	4,405	4,347	57,048

1932

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
Labor	2,903	2,832	2,743	2,652	2,590	2,495	2,405	2,347	2,363	2,373	2,366	2,326	30,395
Entrepreneurial	522	510	495	480	470	454	439	430	433	435	435	429	5,532
Property	836	809	792	779	757	733	726	714	709	705	698	693	8,951
Total	4,261	4,151	4,030	3,911	3,817	3,682	3,570	3,491	3,505	3,513	3,499	3,448	44,878

1933

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
Labor	2,368	2,332	2,243	2,231	2,323	2,401	2,444	2,516	2,572	2,597	2,619	2,725	29,371
Entrepreneurial	426	414	394	388	397	407	414	426	435	437	436	435	5,009
Property	682	670	654	647	637	632	627	623	621	621	629	631	7,674
Total	3,476	3,416	3,291	3,266	3,357	3,440	3,485	3,565	3,628	3,655	3,684	3,791	42,054

1934

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
Labor	2,865	2,819	2,817	2,780	2,798	2,796	2,775	2,784	2,736	2,800	2,824	2,872	33,666
Entrepreneurial	442	451	456	460	464	464	458	454	447	454	455	461	5,466
Property	640	648	655	657	661	665	667	670	670	670	673	672	7,948
Total	3,947	3,918	3,928	3,897	3,923	3,925	3,900	3,908	3,853	3,924	3,952	4,005	47,080

1935

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
Labor	2,951	2,979	2,954	2,971	2,960	2,967	2,968	3,001	3,068	3,118	3,142	3,245	36,324
Entrepreneurial	469	476	471	473	469	472	470	476	488	491	493	503	5,751
Property	672	673	672	671	670	671	671	677	677	680	689	690	8,113
Total	4,092	4,128	4,097	4,115	4,099	4,110	4,109	4,154	4,233	4,289	4,324	4,438	50,188

1936

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
Labor	3,230	3,211	3,233	3,271	3,326	3,380	3,438	3,446	3,475	3,537	3,618	3,671	40,836
Entrepreneurial	496	490	492	496	506	514	522	522	525	533	545	553	6,194
Property	693	700	706	713	723	726	742	757	763	769	826	1,167	9,285
Total	4,419	4,401	4,431	4,480	4,555	4,620	4,702	4,725	4,763	4,839	4,989	5,391	56,315

1937

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
Labor	3,592	3,637	3,677	3,743	3,751								
Entrepreneurial	541	549	554	562	562								
Property	738	740	744	748	756								
Total	4,871	4,926	4,975	5,053	5,069								

Labor income includes pensions and workmen's compensation, in addition to salaries and wages; entrepreneurial income represents withdrawals by owner-operators for labor, capital, and management; property income includes interest, dividends, rents, and royalties.

NATIONAL INCOME, BY MONTHS, 1924–37

The index of nonagricultural income developed in the foregoing pages will undoubtedly be found useful for most purposes in price analyses where the purchasing power of consumers is needed as a measure of domestic demand. There are cases, however, where a more complete measure of domestic demand is desirable, approaching more nearly a measure of total national income, including agricultural income. For example, farmers as well as nonfarmers are consumers of many farm products and therefore the total demand for these would be more accurately represented by an index that included both agricultural and nonagricultural income. For this reason this final section on agriculture's contribution to the national income has been prepared. It develops a monthly series of agriculture's contribution to national income from 1924 to 1937 which may be added to the monthly series of nonagricultural income.

For reasons given in later pages it has been found advisable to depart somewhat from the method used by the Department of Commerce in the handling of agricultural income as a part of the national income. Consequently, the composite of agricultural and nonagricultural income is not strictly a monthly measure of the national income "paid out" as currently defined and represented by the annual estimates of the Department of Commerce. For practical purposes, however, until a better series becomes available, the one developed below may be useful both as a monthly measure of money income of all consumers and as a monthly measure of the national income.

Estimates of agricultural income used as a part of the national income in the Department of Commerce studies are largely based on annual data supplied by the Bureau of Agricultural Economics. In addition to annual farm income and expenditure estimates the Bureau of Agricultural Economics publishes regularly a monthly index of gross farm cash income as well as dollar figures on which the index is based. These monthly income series represent a satisfactory measure of monthly gross cash income realized from farming operations. However, to combine these estimates of gross cash income from farm operations with nonagricultural income of individuals would give a total considerably higher than the Department of Commerce estimates of national income and would, no doubt, weight agriculture somewhat too heavily in the national total. Therefore current production expenses, taxes, depreciation, etc., have been subtracted from gross farm income in arriving at the net contribution of agriculture to the national total. Annual estimates of this nature made by use of the Department of Commerce national income study from 1929 [14] were extended back to 1924. These annual estimates of agriculture's contribution to national income paid out appear in table 9 and the comparable monthly estimates appear in table 12.

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[14] The annual figures used as representing agriculture's contribution to national income consist of: (1) Operators' net income (see table 34 of the Department of Commerce study, National Income in the United States, 1929–35); plus (2) agriculture's contribution to the Nation's wage bill and to the net income from property investments—mortgage interest and rents. The items mentioned under (2) were considered as expenses in arriving at operators' net income and therefore are added back in arriving at agriculture's total contribution to national income.

TABLE 9.—*Agriculture's contribution to national income, by years, 1924–36*

[In millions of dollars, i. e., 000,000 omitted]

APPORTIONMENT OF GROSS FARM INCOME [1]

	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933	1934	1935	1936 [2]
Gross farm income [3]	11,269	11,956	11,582	11,547	11,780	12,125	9,898	7,090	5,298	6,094	7,407	8,402	9,200
Deductions from gross	5,628	5,949	6,064	6,099	6,270	6,408	5,571	4,410	3,608	3,546	3,738	3,987	4,361
Current production expenses [4]	1,545	1,669	1,757	1,720	1,836	1,897	1,673	1,302	1,090	1,113	1,172	1,254	1,285
Rent to all landlords [5]	1,307	1,418	1,409	1,459	1,506	1,566	1,231	898	726	768	892	1,033	1,209
Interest [6]	520	512	505	497	491	473	427	365	320	300	257	246	263
Taxes [7]	292	295	299	311	316	324	310	260	204	180	180	190	211
Depreciation and obsolescence [8]	775	819	812	816	817	835	818	778	745	701	719	711	711
Wages [9]	1,189	1,236	1,282	1,296	1,304	1,313	1,112	807	523	484	518	553	682
Operators' net income [10]	5,641	6,007	5,518	5,448	5,510	5,717	4,327	2,680	1,690	2,548	3,669	4,415	4,839

AGRICULTURE'S CONTRIBUTION TO THE NATION'S WAGE AND PROPERTY INCOME

	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933	1934	1935	1936
Total	2,169	2,308	2,328	2,395	2,431	2,489	2,000	1,439	1,037	1,047	1,182	1,339	1,632
Wages [11]	1,189	1,236	1,282	1,296	1,304	1,313	1,112	807	523	484	518	553	682
Mortgage interest [12]	308	310	310	310	310	307	287	261	229	227	209	200	217
Rents [13]	672	762	736	789	817	869	601	371	285	336	455	586	733

TOTAL CONTRIBUTION OF AGRICULTURE

	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933	1934	1935	1936
Total contribution [14]	7,810	8,315	7,846	7,843	7,941	8,206	6,327	4,119	2,727	3,595	4,851	5,754	6,471

[1] See table 34, p. 70, National Income in the United States, 1929–35, and appendix, pp. 241–242, for more detailed explanation of footnotes 3 to 10 than are given below. The tax figures differ considerably from those in the Department of Commerce income study and interest differs slightly, owing to revisions since publication of the latest Department of Commerce study.

[2] Preliminary.

[3] This is for the calendar year and differs slightly from published Bureau of Agricultural Economics estimates of gross income from production which are based on crop years for crops and calendar years for livestock.

[4] Only the amount paid by farm operators on the farms they operate. Current expenses on farms rented out are deducted from gross rents in arriving at net rents.

[5] The amount estimated as actually paid. It was assumed that 97.5 percent of rents payable were actually paid during all years from 1924–29, this being the percentage used for 1929 in the Department of Commerce income study.

[6] The estimated amount of mortgage interest actually paid by operators (excluding 10 percent for dwellings) on the farms they operate plus all bank interest actually paid. It was assumed that 95 percent of interest payable was actually paid during the 1924–29 period, this being the percentage used for 1929 in the Department of Commerce income study. Mortgage interest on farms rented out is considered an expense in arriving at net rents shown in footnote 13 below.

[7] Estimated amount paid by operators (excluding 10 percent for dwellings) on farms operated by them, assuming same ratio of paid to payable as for interest. (See footnote 4 above.) Taxes on farms rented out handled same as mortgage interest on farms rented out. (See footnote 6 above.)

[8] All depreciation and obsolescence on machinery plus that on buildings chargeable to operators on farms they operate. Building depreciation and obsolescence on farms rented out handled same as mortgage interest and taxes. (See footnotes 6 and 7 above.)

[9] Cash wages, as reported by the Bureau of Agricultural Economics. plus 25 percent for board and 12½ percent for perquisites.

[10] The balance remaining after deducting costs from gross. Operators net, as shown here, includes unimportant amounts of dividends and compensation of farm managers and employees. These rightfully belong with agriculture's contribution to the Nation's labor and property income as listed below, but are excluded to prevent duplication.

[11] Same as footnote 9 above.

[12] This is mortgage interest, paid by owner operators on farms they operate as explained in footnote 6 above.

[13] Gross payments as shown in footnote 5 above less current expenses, mortgage interest, taxes, and depreciation chargeable to rented farms.

[14] Operators' net income plus agriculture's contribution to the Nation's wage and property income.

Substantial differences between the trend of gross farm income and that of agriculture's contribution to national income as well as between the actual amounts are disclosed by comparison of the final figures presented in table 9 with calendar year estimates of gross income. This comparison is made in table 10 which follows:

TABLE 10.—*Relation between agriculture's contribution to national income and gross farm income, by years, 1924–36*

[Dollars in millions, i. e., 000,000 omitted]

	Gross farm income including benefits [1]	Agriculture's contribution to national income	Ratio estimated contribution to national is to gross	Amount by which gross exceeds contribution to national income
			Percent	
1924	$11,269	$7,810	69.3	$3,459
1925	11,956	8,315	69.5	3,641
1926	11,582	7,846	67.7	3,736
1927	11,547	7,843	67.9	3,704
1928	11,780	7,941	67.4	3,839
1929	12,125	8,206	67.7	3,919
1930	9,898	6,327	63.9	3,571
1931	7,090	4,119	58.1	2,971
1932	5,298	2,727	51.5	2,571
1933	6,094	3,595	59.0	2,499
1934	7,407	4,851	65.5	2,556
1935	8,402	5,754	68.5	2,648
1936 [2]	9,200	6,471	70.3	2,729

[1] These calendar-year figures are unpublished estimates based on Bureau of Agricultural Economics data. As published, gross farm income from production includes income from crops produced in a given year even though a portion of the income is actually realized later.
[2] Preliminary.

The figures presented here as agriculture's contribution to national income are identical (except for revisions mentioned previously, see footnotes to table 9) with agricultural Income Produced as classified in the Department of Commerce national income study, released in November 1936. For the purpose of this study it appears more logical to use this series than the one classified in the Department of Commerce study as agricultural income paid out.

The latter excludes the estimated business savings of agriculture. That these estimates are of questionable value is emphasized in the Department of Commerce income study, page 66, last paragraph, where it is stated that: "There are serious limitations to the estimates of business savings here presented for the field of agriculture as well as for other types of industry where unincorporated enterprise is important." Certainly in the sense that all of the contribution of agriculture to the Nation's total income, as here presented, is available for individual use (of the operator, wage earner, landlord, or mortgagee), it may properly be considered as income paid out. That portion of the net profits of corporate enterprise, for any given year, which is not paid out as dividends, and is therefore not available for individual use, obviously differs greatly from the theoretical saved portion of the net income actually received by an individual farmer from products marketed.

If any business savings other than additions to capital assets (positive or negative) are to be estimated for agriculture they should be based on year-to-year changes in the value of inventories of products held by farmers. Thus, a net gain in the value of products held back, and not marketed during a given year, would represent income produced but not paid out. On the other hand, a reduction in inventories carried over would represent income paid out but not produced. In the first instance there would be business savings of a positive nature and in the second such savings would be negative.

The proper method of valuing inventories is a problem which need not enter into this study.

Until data of this nature are available, to estimate business savings in agriculture in an attempt to gain accounting comparability with methods used in making estimates for all other fields of activity, is apt to weaken rather than to strengthen the value of agricultural income data for use in determining the shifting influence of agriculture on the economic well-being of the Nation.

An example of the difference in results obtained by use of agricultural income paid out and agriculture's total contribution to the national income, as here presented, is offered in table 11.

TABLE 11.—*National income, by years, 1924–36*

[Dollars in millions; i. e., 000,000 omitted]

	Nonagricultural paid out [2]	Agricultural		Total national [1]		Ratio of agricultural to total	
		Paid out [3]	Contributed to national [4]	Paid out	Nonagricultural paid out plus agriculture's contribution	Paid out [5]	Nonagricultural paid out plus agriculture's contribution [6]
						Percent	*Percent*
1924	$60, 136	$6, 596	$7, 810	$66, 732	$67, 946	9. 88	11. 49
1925	63, 978	6, 779	8, 315	70, 757	72, 293	9. 58	11. 50
1926	66, 740	6, 885	7, 846	73, 625	74, 586	9. 35	10. 52
1927	67, 636	6, 930	7, 843	74, 566	75, 479	9. 29	10. 39
1928	69, 182	6, 958	7, 941	76, 140	77, 123	9. 14	10. 30
1929	71, 609	7, 030	8, 206	78, 639	79, 815	8. 94	10. 28
1930	66, 830	6, 121	6, 327	72, 951	73, 157	8. 39	8. 65
1931	57, 048	4, 726	4, 119	61, 774	61, 167	7. 65	6. 73
1932	44, 877	3, 583	2, 727	48, 460	47, 604	7. 39	5. 73
1933	42, 054	3, 453	3, 595	45, 507	45, 649	7. 59	7. 88
1934	47, 080	3, 869	4, 851	50, 949	51, 931	7. 59	9. 34
1935	50, 188	4, 281	5, 754	54, 469	55, 942	7. 86	10. 29
1936 [7]	56, 315	4, 868	6, 471	61, 183	62, 786	7. 96	10. 31

[1] Reference to table 2, in which the effect of eliminating agricultural from total national income in arriving at the nonagricultural portion was shown, will disclose some disagreement with either of these totals. For reasons fully explained in footnotes to tables and the context of this study, revisions have been made in the agricultural income figures as shown in previous income studies, and a somewhat different concept of agriculture's contribution to national income has been adopted. When added to the nonagricultural portion, these new estimates naturally give totals differing somewhat from those in previous studies.

[2] Excludes net agricultural rentals which have been added to agricultural income in the following 2 columns. Other than this, and the inclusion of direct relief from 1933, these totals agree with published Department of Commerce estimates from 1929 to 1935. Prior to 1929, King's estimates of realized income from production, minus agriculture.

[3] As estimated by the Department of Commerce, except for slight revisions, plus net agricultural rents from 1929 to 1935. Prior to 1929 estimated by same methods employed in later years.

[4] Except for revisions explained in footnotes to table 9 this is essentially the same as agricultural income produced, as classified in the Department of Commerce income study, plus net agricultural rentals.

[5] Ratio of agricultural income paid out, to national income paid out.

[6] Contributed by agriculture as percent of the total of nonagricultural national income plus agriculture's contribution.

[7] Estimated.

The estimates of agricultural income paid out, as used by the Department of Commerce but which have not been adopted in this study for reasons given above, show that recovery, from 1932 to 1936, in agricultural and in total national income paid out, proceeded at about the same rate; the agricultural portion advancing only from 7.39 to 7.96 percent of the total. On the other hand, recovery in agriculture's contribution from 5.73 to 10.31 percent of the national total is indicated by the concept used in this study. An examination of the trend of retail sales in rural and urban areas, the trend of new car registrations in predominantly farm States and in all other States,

and other comparisons of a similar nature throw considerable light on the question as to which of these income series really better reflects changes in farm buying power.

INDICATIONS OF GAINS IN URBAN AND RURAL BUSINESS BETWEEN 1932 AND 1936

	Percent gain
Rural retail sales	82
Urban retail sales (department stores)	28
Advertising, farm papers	50
Advertising, general index	24
New auto registrations (21 agricultural States)	267
New auto registrations (all other States)	200
Factory employment in farm-implement plants	207
Factory employment in machinery, excluding farm and transportation	79

These data show that demand improved considerably more in rural than in urban areas and reflect the fact that recovery in agriculture's contribution to the Nation's income has been substantially greater than the recovery in total income.

The problem of distributing by months the annual estimates of agriculture's contribution to national income is made difficult by the lack of monthly data on the expenditures which are excluded from gross income in arriving at the net contribution and which are highly seasonal in character. Were all the necessary monthly data available it would only be necessary to subtract monthly expenses, after adjustment for seasonal variation, from monthly gross farm income, also seasonally adjusted. In the absence of these basic data by months a different procedure is followed. Instead of distributing gross farm income by months and then subtracting expenses the expenses are subtracted from the annual estimates of gross income and the balance is distributed by months.

The entire balance, prior to 1929 and all of it except wages to hired farm labor from 1929 to date, is distributed by months on the basis of the trend of seasonally adjusted gross cash income estimates of the Bureau of Agricultural Economics, made into a 3-month moving average to eliminate occasional violent fluctuations. No seasonal adjustment is therefore necessary.

Beginning with 1929 a monthly distribution of the annual wages to hired farm labor is accomplished by use of an index constructed from monthly estimates of the number of hired farm workers and a quarterly index of farm wage rates, both of which are available in the Bureau of Agricultural Economics. Wage rates for months between the quarterly reports are computed by straight-line interpolation. Monthly indexes constructed from these employment and wage-rate data are used to distribute the annual payments by months and to extend monthly estimates forward until later annual data become available. The monthly estimates of farm-wage payments are adjusted for seasonal variation by the method of ratios to trend.

The total of the seasonally adjusted monthly net contribution of agriculture to national income, determined as explained above, probably does not differ greatly from results which would be obtained were additional basic data available by months. The fact that final figures are, in any event, adjusted for seasonal variation tends to minimize the influence of the seasonal character of basic data used in their computation.

Agriculture's contribution to national income by months has been added to nonagricultural income from 1924 to date, and the resulting totals used to construct a monthly index of national income for this period. These data are shown both in dollars and as indexes in tables 12 and 13.

TABLE 12.—*National income, including agriculture,*[1] *by months, adjusted for seasonal variation, 1924-37*

[Millions of dollars; i. e., 000,000 omitted]

1924

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
Nonagricultural	5,074	5,130	5,102	5,135	5,030	4,924	4,852	4,880	4,947	4,941	4,986	5,135	60,136
Agriculture's contribution	639	634	624	623	619	637	643	646	660	679	697	709	7,810
Total	5,713	5,764	5,726	5,758	5,649	5,561	5,495	5,526	5,607	5,620	5,683	5,844	67,946

1925

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
Nonagricultural	5,185	5,185	5,174	5,196	5,224	5,268	5,367	5,363	5,379	5,523	5,557	5,557	63,978
Agriculture's contribution	727	736	738	695	662	639	645	677	721	699	685	691	8,315
Total	5,912	5,921	5,912	5,891	5,886	5,907	6,012	6,040	6,100	6,222	6,242	6,248	72,293

1926

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
Nonagricultural	5,556	5,572	5,594	5,556	5,450	5,522	5,489	5,528	5,589	5,644	5,628	5,612	66,740
Agriculture's contribution	697	678	650	651	647	684	700	687	646	603	606	597	7,846
Total	6,253	6,250	6,244	6,207	6,097	6,206	6,189	6,215	6,235	6,247	6,234	6,209	74,586

1927

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
Nonagricultural	5,629	5,656	5,640	5,662	5,669	5,673	5,646	5,674	5,647	5,580	5,580	5,580	67,636
Agriculture's contribution	610	623	658	678	686	688	672	668	653	650	641	616	7,843
Total	6,239	6,279	6,298	6,340	6,355	6,361	6,318	6,342	6,300	6,230	6,221	6,196	75,479

1928

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
Nonagricultural	5,639	5,672	5,705	5,683	5,683	5,776	5,849	5,854	5,837	5,843	5,826	5,815	69,182
Agriculture's contribution	612	624	652	672	710	701	699	638	634	642	671	686	7,941
Total	6,251	6,296	6,357	6,355	6,393	6,477	6,548	6,492	6,471	6,485	6,497	6,501	77,123

1929

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
Nonagricultural	5,832	5,896	5,888	5,888	5,929	5,975	6,067	6,125	6,069	6,048	5,959	5,933	71,609
Agriculture's contribution	689	683	691	699	682	664	675	698	713	710	667	635	8,206
Total	6,521	6,579	6,579	6,587	6,611	6,639	6,742	6,823	6,782	6,758	6,626	6,568	79,815

1930

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
Nonagricultural	5,869	5,837	5,744	5,732	5,713	5,665	5,628	5,496	5,416	5,311	5,234	5,185	66,830
Agriculture's contribution	612	603	578	572	568	564	528	497	476	463	443	423	6,327
Total	6,481	6,440	6,322	6,304	6,281	6,229	6,156	5,993	5,892	5,774	5,677	5,608	73,157

[1] As defined in this study; differs somewhat from Department of Commerce estimates.

TABLE 12.—*National income, including agriculture, by months, adjusted for seasonal variation, 1924-37*—Continued

[Millions of dollars; i. e., 000,000 omitted]

1931

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
Nonagricultural____	5,126	5,094	5,009	4,963	4,891	4,823	4,778	4,649	4,536	4,427	4,405	4,347	57,048
Agriculture's contribution_____	411	397	393	390	381	362	342	313	296	277	282	275	4,119
Total_____	5,537	5,491	5,402	5,353	5,272	5,185	5,120	4,962	4,832	4,704	4,687	4,622	61,167

1932

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
Nonagricultural____	4,261	4,151	4,030	3,911	3,817	3,682	3,570	3,491	3,504	3,513	3,499	3,448	44,877
Agriculture's contribution_____	273	269	263	256	241	224	206	196	198	197	200	204	2,727
Total_____	4,534	4,420	4,293	4,167	4,058	3,906	3,776	3,687	3,702	3,710	3,699	3,652	47,604

1933

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
Nonagricultural____	3,476	3,416	3,291	3,266	3,357	3,440	3,485	3,565	3,628	3,655	3,684	3,791	42,054
Agriculture's contribution_____	218	218	222	228	275	333	389	373	357	324	328	330	3,595
Total_____	3,694	3,634	3,513	3,494	3,632	3,773	3,874	3,938	3,985	3,979	4,012	4,121	45,649

1934

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
Nonagricultural____	3,947	3,918	3,928	3,897	3,923	3,925	3,900	3,908	3,853	3,924	3,952	4,005	47,080
Agriculture's contribution_____	335	351	356	365	376	395	429	454	461	459	445	425	4,851
Total_____	4,282	4,269	4,284	4,262	4,299	4,320	4,329	4,362	4,314	4,383	4,397	4,430	51,931

1935

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
Nonagricultural____	4,092	4,128	4,097	4,115	4,099	4,110	4,109	4,154	4,233	4,289	4,324	4,438	50,188
Agriculture's contribution_____	418	421	438	471	489	496	476	477	492	513	531	532	5,754
Total_____	4,510	4,549	4,535	4,586	4,588	4,606	4,585	4,631	4,725	4,802	4,855	4,970	55,942

1936

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
Nonagricultural____	4,419	4,401	4,431	4,480	4,555	4,620	4,702	4,725	4,763	4,839	4,989	5,391	56,315
Agriculture's contribution_____	503	480	472	494	526	563	596	589	575	549	554	570	6,471
Total_____	4,922	4,881	4,903	4,974	5,081	5,183	5,298	5,314	5,338	5,388	5,543	5,961	62,786

1937

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
Nonagricultural____	4,871	4,926	4,975	5,053	5,069	_____	_____	_____	_____	_____	_____	_____	_____
Agriculture's contribution_____	565	565	588	605	638	_____	_____	_____	_____	_____	_____	_____	_____
Total_____	5,436	5,491	5,563	5,658	5,707	_____	_____	_____	_____	_____	_____	_____	_____

TABLE 13.—*Indexes of national income, including agriculture,* [1] *by months, adjusted for seasonal variation, 1924–37*

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1924	92.0	92.8	92.2	92.7	90.9	89.5	88.5	89.0	90.3	90.5	91.5	94.7	91.2
1925	95.2	95.3	95.2	94.8	94.8	95.1	96.8	97.2	98.2	100.2	100.5	100.6	97.0
1926	100.7	100.6	100.5	99.9	98.2	99.9	99.6	100.1	100.4	100.6	100.4	100.0	100.1
1927	100.4	101.1	101.4	102.1	102.3	102.4	101.7	102.1	101.4	100.3	100.2	99.8	101.3
1928	100.6	101.4	102.3	102.3	102.9	104.3	105.4	104.5	104.2	104.4	104.6	104.7	103.5
1929	105.0	105.9	105.9	106.1	106.4	106.9	108.5	109.9	109.2	108.8	106.7	105.7	107.1
1930	104.3	103.7	101.8	101.5	101.1	100.3	99.1	96.5	94.9	93.0	91.4	90.3	98.2
1931	89.1	88.4	87.0	86.2	84.9	83.5	82.4	79.9	77.8	75.7	75.5	74.4	82.1
1932	73.0	71.2	69.1	67.1	65.3	62.9	60.8	59.4	59.6	59.7	59.6	58.8	63.9
1933	59.9	58.5	56.5	56.2	58.5	60.7	62.4	63.4	64.2	64.1	64.6	66.3	61.2
1934	68.9	68.7	69.0	68.6	69.2	69.6	69.7	70.2	69.5	70.6	70.8	71.3	69.7
1935	72.6	73.2	73.0	73.8	73.9	74.2	73.8	74.6	76.1	77.3	78.2	80.0	75.1
1936	79.2	78.6	78.9	80.0	81.8	83.4	85.3	85.6	85.9	86.8	89.5	95.7	84.2
1937	87.5	88.4	89.5	91.1	91.9								

[1] National income, including agriculture, as defined in this study, averaged approximately $6,212,000,000 per month during the 1924–29 base period. The nonagricultural portion of the total is obtained through use of King's estimates for years prior to 1929 and Department of Commerce estimates after 1928, as explained in detail elsewhere in this study.

Agriculture's contribution to the total, beginning with 1929, represents a reclassification of the Department of Commerce income estimates (also some revisions). The figures used include the net income of farm operators, plus the contribution of agriculture to the Nation's wages and property income. For years prior to 1929 the estimates were made by use of the same basic series of income and expenditure data and by the same methods that were employed in arriving at agriculture's contribution in later years.

APPENDIXES

APPENDIX A: MONEY INCOME OF FARMERS AND INDUSTRIAL WORKERS, AND SELECTED RETAIL EXPENDITURES

(From the Agricultural Situation, February 1933)

In a recent issue of this publication [1] there were presented data on trends in gross farm income and expenditures in which it was shown that the expenditures for such items as fertilizer, feed, farm wages, and machinery were directly dependent upon farm income. In another issue [2] the post-war changes in farm income were discussed in relation to changes in domestic demand and financial conditions and to changes in foreign competition and demand.

In the following article are contained two additional sets of data which deal with (a) the monthly money incomes of certain groups of industrial consumers related to the monthly money income derived from farm marketings and (b) the income of all nonagricultural consumers related to their retail expenditures for selected food items.

The three groups of industrial workers considered in the first set of data (shown in fig. 1) are those attached to the factories, railroads, and construction industries. According to estimates of the National Bureau of Economic Research, wages and salaries of individuals attached to manufacturing establishments in 1928 amounted to about $14,500,000,000, of those attached to railroads $3,100,000,000, and of those attached to construction industries $3,500,000,000. These groups represented about 40 percent of the total of all wages and salaries, amounting in that year to $52,000,000,000. The current changes in the money income of factory employees are indicated in figure 1 by an index of factory pay rolls published by the Federal Reserve Board. A similar index, computed by the Federal Reserve Board, derived from reports of the Interstate Commerce Commission, shows current changes in railroad pay rolls. For the construction industries there is no current index of workers' incomes, but inasmuch as wages form such a large and fairly stable proportion of the value of contracts awarded, the latter may be used in this connection as representing approximately the current flow of income to consumers attached to the construction industries.

From the showing in figure 1 it appears that by the end of 1932 railroad and factory pay rolls had declined respectively to about 50 percent and 40 percent of their 1923–25 levels, while construction contracts awarded in 37 States averaged only about 25 percent of the 1923–25 level. But the latter, judging from other available data for recent years, apparently overstates the decline in total construction expenditures, which in 1932 was probably about 40 percent of the 1923–25 average.

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[1] See "The Agricultural Situation," July 1932.
[2] See "The Agricultural Situation," December 1932.

These three measures of industrial consumer's income when combined [3] (see lower half of fig. 1) show a level of income in the period 1926–29 about 10 percent higher than in 1923 with no marked upward trend during that period.   Between 1929 and the end of 1932 there has occurred a decline from about 112 percent to about 40 percent
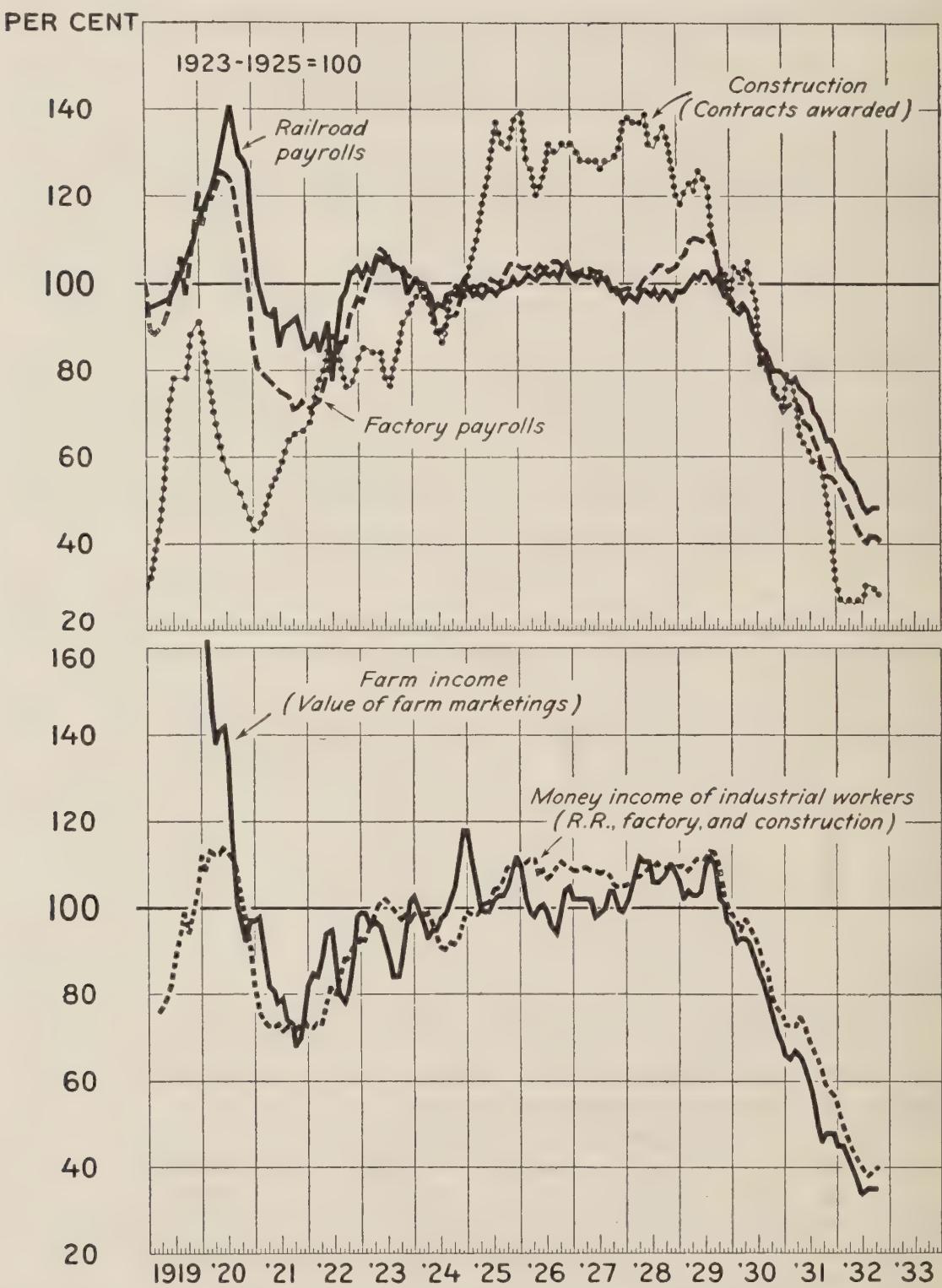
FIGURE 1.—MONEY INCOME OF INDUSTRIAL WORKERS AND FARM INCOME, 1919–32

of the 1923–25 average or a total shrinkage of around 65 percent, as a result of both complete and part-time employment and wage reductions as well.   The decline since 1929 has been twice as great as that between 1920 and 1921.

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[3] The weights applied to the three indexes.   Factory pay rolls 4.0, railroad pay rolls 1.0, contracts awarded 1.5.

The course of these combined industrial incomes bears a striking relation to the course of the money value of farm marketings, particularly from 1921 to date.[4] During the last 3 years the changes in farm income have run parallel to those of industrial wage earners but
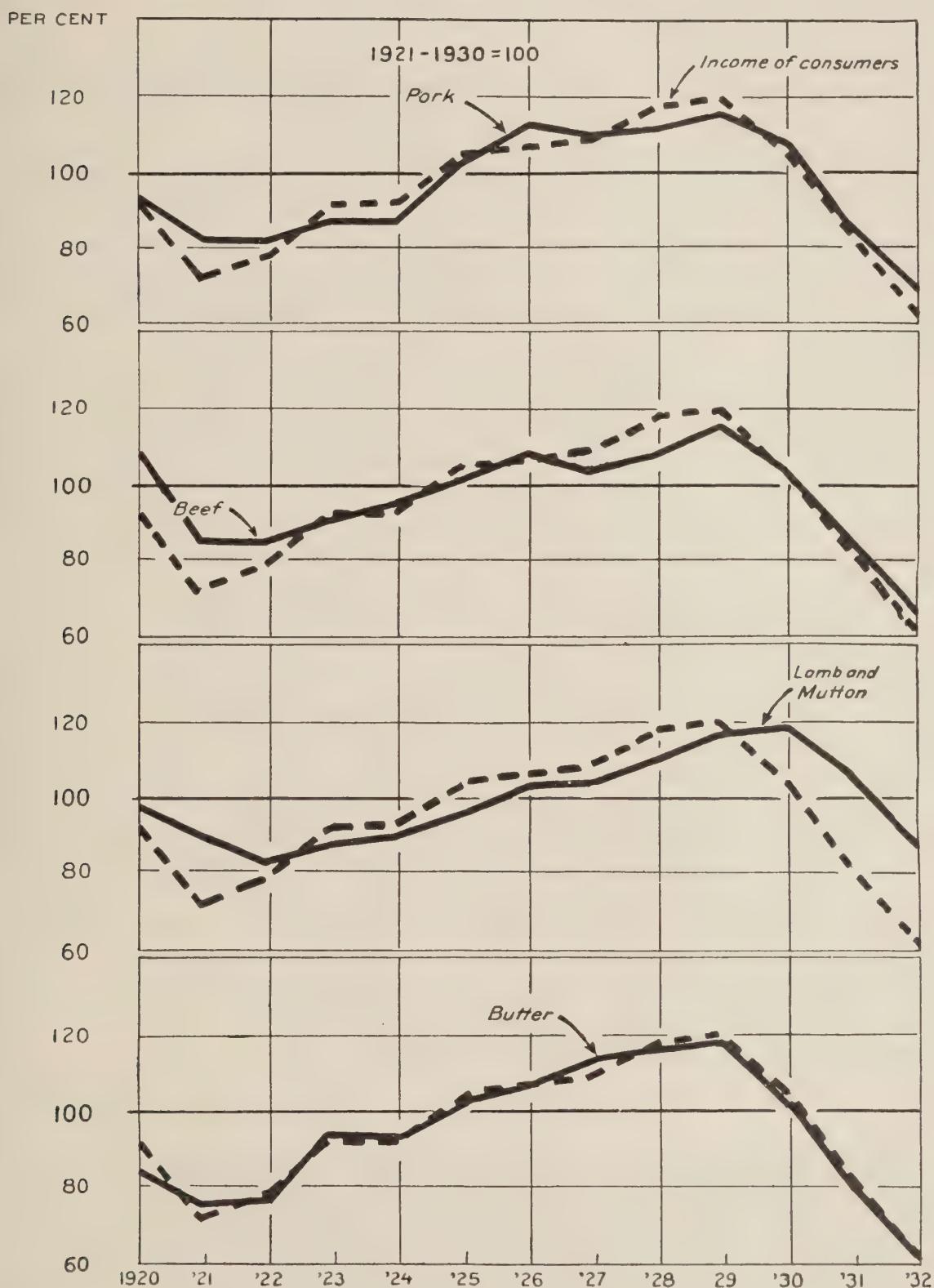
FIGURE 2.—INCOME OF NONAGRICULTURAL CONSUMERS COMPARED WITH RETAIL EXPENDITURES FOR SELECTED FOODS, UNITED STATES 1920–32.

on a somewhat lower level. Some marked differences, however, occurred in former years. Thus in 1920–21 the decline in farm income was an abrupt one, due chiefly to the course of price deflation which

[4] The index of value of farm marketings derived from an index of agricultural marketings and an index of prices received by farmers, both adjusted for seasonal.

exceeded the decline in industrial wages and employment. The irregular variations in farm income during the 1921–23 seasons largely reflected changes in prices of export commodities, particularly wheat. The much sharper rise in farm income in 1924–25 was produced chiefly by a wheat shortage outside the United States and a very active foreign demand for our surplus of wheat.

While it may be inferred from this illustration, with some reason, that agricultural income failed to expand after 1925 because the incomes of these three industrial groups also showed no advance after 1925, it should be borne in mind that employment in other industries and the national income of all nonagricultural consumers continued to expand and that, as pointed out in the July 1932 issue of this publication, farm income from livestock after 1925 continued to mount with the rising national income, while the income from crops affected by depressing influences of increased foreign competition tended downward.

The rather close dependence of farm income from livestock and livestock products, of which relatively little is exported, on the money incomes of domestic nonagricultural consumers is clearly suggested by the close correspondence that existed during the postwar period 1920–32 between an index of the total income of such consumers and estimated total retail expenditures for the country as a whole for four selected items, pork, beef and veal, lamb and mutton, and butter.[5] (See fig. 2.) Between 1921 and 1929 the index of money incomes used in this illustration [6] advanced about 60 percent and between 1929 and 1932 had declined about 50 percent to a level below that of 1921. Expenditures for butter for this 13-year period show practically the same change as those of this index of consumer incomes. The expenditures for the three meats, though corresponding in their changes to those of consumer incomes, show a somewhat smaller rise from 1921 to 1929 and a smaller decline since then, suggesting that as national income rose a somewhat smaller proportion of the consumer's income was spent for meats and a larger proportion for nonfood items—in this period for such items as automobiles, radios, etc.—and that as the national income declined after 1920 and 1929, expenditures for meats declined less than those for less essential commodities. In the case of lamb and mutton, it will be observed, expenditures reached their lowest level in 1922 and their highest in 1930, a year after the corresponding levels in consumer income.

<div align="right">L. H. Bean,
Division of Statistical and Historical Research.</div>

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[5] Expenditures for meat as computed by G. B. Thorne and Preston Richards and for butter by E. E. Vial.
[6] This index is based on estimates of the United States Treasury of the total gross income of corporations which in 1921 amounted to $95,300,000,000, $158,600,000,000 in 1929, and $107,000,000,000 in 1931. A further drop to about $80,000,000,000 or somewhat less is indicated for 1932 by the course of industrial production, prices, and check payments. This series represents a wide variety of disbursements, actual and potential, for wages, materials, dividends, which may be considered in the nature of actual or potential incomes of wage earners, managers, owners, and bond and shareholders. The incomes of certain groups of consumers such as Government employees and professional groups are not, of course, reflected here. These annual gross receipts are much larger than the estimates of national income since the latter attempt to exclude duplications. The course of this income series from 1920 to 1931 corresponds very closely to the estimates of national income of the National Bureau of Economic Research, though in some years fluctuating somewhat more than the estimates of national income because the latter include evaluations of certain forms of income that are relatively stable. For 1921, the national income as estimated by the national bureau was $63,700,000,000; for 1928, $88,300,000,000, the latest estimate available. The course of the index in Fig. 2 indicates a national income for 1929 of about $91,000,000,000; for 1931, $67,000,000,000; and for 1932 somewhat under $55,000,000,000.

[Prepared by O. V. Wells and L. H. Bean in the Division of Statistical and Historical Research, Bureau of Agricultural Economics, U. S. Department of Agriculture, in October 1933.—Not previously published]

An index or measure of the total volume of the income received and currently spent by urban consumers is often desired in connection with outlook work. At the present time no such index is available although a number of excellent indexes of factory and of other pay rolls are currently published by the Bureau of Labor Statistics and the Federal Reserve Board. A first approximation to such an index, together with an index of the income of industrial workers which may be of equal interest, is presented in figure 1 and table 1. As presented the indexes are to be considered as only approximate, and it is hoped that someone will revise or rework them when the estimates of the national income for the period 1929–33 and the revisions of the estimates for the period through 1928 are completed by the Bureau of Foreign and Domestic Commerce and the National Bureau of Economic Research.

The weights used in combining the several individual indexes given in table 1 into the composite indexes were derived from the estimates of wages and salaries presented by W. I. King in The National Income and Its Purchasing Power. Since no data were available for the service group, it was assumed to be equal to the public utilities group. The interest and dividends weight was calculated by taking 35 percent of the net volume of interest and dividends after payments to corporations had been adjusted for.[1] The average annual incomes in millions of dollars of the several groups for the period 1923–25 and the relative percentages were:

		Percent
Factory	$14,205	39.50 rounded to 40.00
Building	2,170	6.00 rounded to 7.50
Railroad	3,105	8.50 rounded to 7.50
Mining	1,635	4.50 rounded to 5.00
Trade	5,400	15.00 rounded to 15.00
Service	1,245	3.50 rounded to 3.75
Public utility	1,245	3.50 rounded to 3.75
Government	4,925	13.75 rounded to 12.50
Interest and dividends	2,070	5.75 rounded to 5.00

As indicated in the third column, the weights of the several groups were rounded for ease of calculation. Since other data indicated that the weight given to the building group should be increased, the weights of the railroad and the government groups were decreased somewhat and the weight of the building group was increased.

The factory, building, railroad, and mining indexes were combined into an index of the income of industrial workers since they are the

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[1] It was estimated that 25 percent of the dividend payments in 1929 went to people whose incomes were $5,000 or under. Since it was desired to exclude that portion of the interest and dividend payments which are not currently spent for consumption goods, the 35-percent weight was decided upon. See A. A. Berle and G. C. Means, The Modern Corporation and Private Property.

Credit for help in collecting data and for clerical assistance is due to Viola E. Culbertson, Margaret Frazier, and Lacy G. Jackson.

sensitive indexes and since they have a different trend than the non-industrial group. For the 1923–25 base period, the industrial index represents an annual income of about $21,600,000,000. A nonindustrial index may be calculated for any given month or year by subtracting 60 percent of the industrial index from the index of urban consumers' income and multiplying the remainder by 2.5.

The income represented by the index of urban consumers' income for the 1923–25 base period is about $3,000,000,000 monthly or $36,000,000,000 annually. The industrial index is given a weight of 60 percent in the construction of the urban income index. Either index may be shifted to any desired base, since they are both of the simple aggregative type. The changes in the index of the income of urban consumers are believed to be reasonable measures of the changes in the current income of approximately 80 percent of the urban workmen whose incomes furnish the great bulk of the domestic purchasing power for food and clothing.

A monthly index of the incomes of urban consumers is presented in table 2, and of the incomes of industrial workers in table 3. Some comparative indexes of urban income, of gross agricultural income, of corporation income, of bank debits to individual accounts, of industrial production and an index of urban population are presented in table 4.

Since the several indexes which were combined into the composite indexes of industrial and urban income were all adjusted to the 1923–25 base and corrected for seasonal variation before the composite indexes were calculated, the indexes of the incomes of industrial workers and urban consumers are also on a 1923–25 base and are automatically corrected for seasonal variation. With the exception of the Government index, all of the data entering into the index of the income of urban consumers is published monthly in The Survey of Current Business. A short description of each of the individual indexes used is given below.

FACTORY.—The index of factory pay rolls currently compiled and published by the Federal Reserve Board is used to measure the income of factory workers. As published, this index is not corrected for seasonal variation. To correct for seasonal, the factory pay rolls index is divided by the seasonal indexes given in table 5. This seasonal index represents the average seasonal variation in the index from August 1922 through July 1930.

BUILDING.—The index of construction contracts awarded, corrected for seasonal variation, as currently published in the Federal Reserve Bulletin and the Survey of Current Business, is used to measure the income of building workers. To allow for the translation of contracts awarded into payments to workers, the index is lagged 2 months. To adjust the lagged indexes to a 1923–25 base they are multiplied by 1.033. The index is based upon data collected by F. W. Dodge Corp.

RAILROADS.—The pay rolls of class I railroads as currently reported by the Interstate Commerce Commission are indexed and used to measure the income of railroad workers. To correct for seasonal, the railroad index is divided by the indexes of seasonal variation given in table 5.

MINING.—The index of mining pay rolls is calculated from the indexes of mining pay rolls which are currently compiled and published by the Bureau of Labor Statistics. The index is calculated

by (1) giving a weight of 1.0 to anthracite coal, of 4.0 to bituminous coal, of 1.0 to metalliferrous mining, of 1.0 to quarrying and nonmetal mining, and of 1.0 to petroleum to obtain a composite index on a 1929 base, (2) multiplying the composite index by 1.125 to transfer it to a 1923–25 base, and (3) dividing the 1923–25 index by the seasonal indexes given in table 5 to adjust for seasonal variation. The seasonal indexes are average ratio to trend indexes for the 3-year period, 1929–31. The annual indexes from 1919 through 1928 are based upon estimates made by King, and the same proportionate monthly variation was given the index through 1928 as was shown by a composite monthly index of factory, construction, and railroad pay rolls. The annual index for 1929 was estimated from the index of mineral production of the Federal Reserve Board.

WHOLESALE AND RETAIL TRADE.—The trade index is calculated from the indexes of wholesale and retail pay rolls currently compiled and published by the Bureau of Labor Statistics. The index is calculated by (1) dividing the retail index by the seasonal indexes given in table 5 to adjust for seasonal variation, (2) combining the two indexes by giving a weight of 2.0 to wholesale trade and 5.0 to retail trade to obtain a composite index on a 1929 base, and (3) multiplying by 1.250 to transfer the composite index to a 1923–25 base. The seasonal indexes for the retail index are average ratio to trend indexes for the period 1929–31. Since the wholesale index is characterized by an almost complete lack of seasonal variation and has almost the same trend as the retail index, it was used as a measure of the trend of the retail index. The annual indexes from 1919 through 1929 were based upon estimates made by King and the extension of a trend, and the same proportionate monthly variation was given the index through 1928 as was shown by a composite monthly index of factory, construction, and railroad pay rolls.

SERVICE.—The service index is based upon the indexes of laundry, dyeing and cleaning, and hotel pay rolls currently compiled and published by the Bureau of Labor Statistics. The index is calculated by (1) giving a weight of 2.5 to laundry, of 1.0 to cleaning and dyeing, and of 2.5 to hotels to obtain a composite index on a 1929 base, (2) multiplying the 1929 index by 1.225 to convert to a 1923–25 base, and (3) dividing by the seasonal indexes given in table 5 to adjust for seasonal variation. The seasonal indexes are ratio to trend indexes for the 2-year period, 1931–32. The annual indexes from 1919 through 1929 were based upon the assumptions that employment in the service group increased approximately 50 percent, that earnings per person employed increased somewhat, and that the rate of increase was the same absolute amount for each month.

PUBLIC UTILITIES.—The public-utilities index is based upon the indexes of public-utility pay rolls which are currently compiled and published by the Bureau of Labor Statistics. The index is calculated by (1) giving a weight of 2.0 to power, light, and water, of 1.0 to electric railways, and of 2.0 to telephone and telegraph to obtain a composite index on a 1929 base, and (2) multiplying the composite index by 1.300 to transfer it to a 1923–25 base. No seasonal correction is needed. The annual indexes from 1919 through 1929 were based upon estimates made by King and the extension of a trend, and the same proportionate monthly variation was given the index through 1928, as was shown by a composite index of factory, construction, and railroad pay rolls.

GOVERNMENT.—The Government index is a composite index representing Federal pensions, army and navy pay rolls, post-office pay rolls, Federal civil-service pay rolls, school-teaching pay rolls, and State and municipal pay rolls. The several annual indexes and the weights used in constructing the general index are given in table 6.[2] The individual indexes are chiefly based upon estimates given by King, upon material presented in the 1934 Budget statement, which was transmitted to the Seventy-second Congress, second session, by the President, and upon the assumption that payments to school teachers declined at a slower rate, and payments to other State and municipal workers declined at a faster rate, from 1929 into 1933 than did payments to workers in the Federal post office and civil service. The annual indexes were so distributed monthly as to be nonseasonal, to give a smooth trend, and to make all changes on quarter dates. The Government index is dropped enough in April 1933 to lower the index of urban consumers' income one-quarter point, and enough in July to lower the general index 1¼ points. The index for the period from July through December is carried at 110.0.
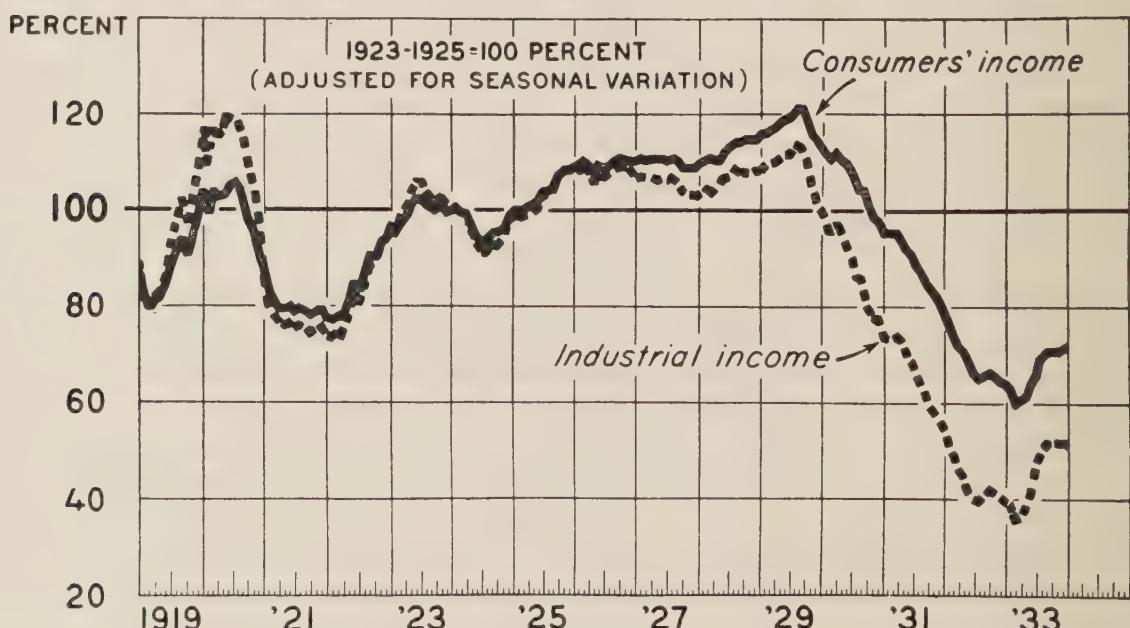
FIGURE 1.—INCOME OF INDUSTRIAL WORKERS AND URBAN CONSUMERS, 1919–33.

INTEREST AND DIVIDENDS.—The interest and dividend series which is currently compiled and published by the Journal of Commerce is indexed and used to measure interest and dividend payments. The index is calculated from the interest and dividends data by (1) calculating a 3-month moving average centered on the third month, and (2) dividing by the seasonal bases shown in table 5 to reduce the dollar data to an index on a 1923–25 base and to adjust for seasonal variation. The index represents payments of interest on the Federal debt, of interest on the New York City debt, and of interest and dividends by corporations reporting such payments to several financial papers published in New York City. Since the index was revised and expanded in 1927, the earlier data were multiplied by 1.160 to adjust to the 1927–33 level.

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[2] Allowance is made for relief expenditures by the Federal Government in the last quarter of 1933 in tables 1 and 2. As a result, the Government index for 1933 as given in table 1 is somewhat higher than the index as given in table 2, where relief expenditures are excluded.

TABLE 1.—*Indexes of income of industrial workers and urban consumers, 1919–33*

[1923–25 = 100]

| Year | Con-sumers' income[1] | Industrial workers' income | | | | | Whole-sale and retail trade [4] | Serv-ice [5] | Public util-ity [6] | Gov-ern-ment [7] | Inter-est and divi-dends [8] |
		Total [2]	Fac-tory	Build-ing [3]	Rail-road	Min-ing					
1919	87.5	92.0	98.0	55.0	99.5	86.5	64.5	77.5	62.0	107.5	83.0
1920	101.0	113.0	118.0	73.0	127.0	113.0	77.0	82.0	81.0	88.5	89.0
1921	80.5	77.0	77.0	54.5	94.0	86.5	76.5	86.5	83.5	95.0	87.0
1922	84.5	82.0	81.0	78.5	91.0	80.5	81.0	91.0	85.5	95.5	88.5
1923	99.5	102.0	103.5	84.5	103.5	112.0	98.0	95.5	95.0	96.5	93.5
1924	97.0	95.5	95.5	96.0	97.5	92.5	97.5	100.0	99.5	99.5	100.0
1925	103.5	102.5	101.0	119.5	99.0	95.5	104.5	104.5	105.5	104.0	106.5
1926	109.5	108.0	104.5	134.0	101.5	108.0	113.0	109.0	114.0	108.5	114.5
1927	110.0	105.5	102.0	133.5	100.5	101.0	116.5	113.5	119.0	112.5	126.0
1928	112.5	106.0	102.0	139.0	97.5	104.0	121.0	118.0	124.0	117.5	134.0
1929	117.5	109.5	108.0	125.0	100.0	112.5	125.0	122.5	130.0	122.5	168.0
1930	106.5	89.5	87.5	98.5	88.0	94.0	120.0	116.0	129.0	127.0	193.0
1931	90.0	67.5	66.0	70.0	72.5	65.5	107.5	103.0	117.0	129.0	185.5
1932	69.5	44.0	45.5	31.5	52.5	41.0	86.0	79.5	98.0	124.0	159.0
1933	65.8	44.0	47.6	23.2	48.6	40.1	78.9	67.7	84.8	117.5	143.0

[1] Calculated by giving weight of 24.0 to industrial workers' income, of 6.0 to trade, of 1.5 to service industries, of 1.5 to public utilities, of 5.0 to Government, and of 2.0 to interest and dividends. For the base period the average monthly income represented by the index is $3,000,000,000.

[2] Calculated by giving weight of 16.0 to factory, of 3.0 to building, of 3.0 to railroad, and of 2.0 to mining pay rolls.

[3] Construction contracts lagged 2 months.

[4] Weight of 2.0 given to wholesale trade and of 5.0 to retail trade.

[5] Weight of 2.5 to hotels, of 2.5 to laundries, and of 1.0 to dyeing and cleaning.

[6] Weight of 2.0 to electric railways, of 2.0 to telephone and telegraph, and of 1.0 to power and light.

[7] Composite of Federal pay rolls and pensions, school teaching, and State and city government.

[8] Corporate interest and dividends, interest on Federal debt, and interest on New York City debt.

TABLE 2.—*Indexes of income of urban consumers, by months, 1919–33* [1]

[1923–25 = 100]

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Aver-age
1919	87.0	81.5	80.0	81.0	81.5	84.0	88.5	91.0	93.5	91.0	94.5	98.0	87.5
1920	103.5	100.0	103.5	102.5	103.0	105.0	105.5	104.5	102.5	98.0	95.0	89.5	101.0
1921	87.5	83.0	81.0	79.5	79.5	80.0	78.5	79.5	79.0	78.0	79.0	79.5	80.5
1922	77.5	77.0	78.0	77.5	81.0	84.5	83.5	86.5	90.0	90.0	93.5	94.0	84.5
1923	95.5	95.0	97.5	99.0	101.5	102.5	102.5	101.5	100.5	100.0	101.0	99.5	99.5
1924	100.0	100.5	99.5	99.5	97.0	94.5	93.0	93.5	95.0	95.0	96.0	99.0	97.0
1925	100.0	100.0	100.0	100.5	101.0	102.0	104.0	104.0	104.5	107.5	108.5	108.5	103.5
1926	109.0	109.5	110.0	109.5	107.5	109.0	108.5	109.0	110.0	111.0	110.5	110.0	109.5
1927	110.0	110.5	110.0	110.5	110.5	110.5	110.0	110.5	110.0	108.5	108.5	108.5	110.0
1928	109.5	110.0	110.5	110.0	110.0	112.0	113.0	114.0	114.0	114.5	114.5	114.5	112.5
1929	115.5	116.0	116.5	117.0	118.0	118.5	119.0	120.5	120.5	119.0	115.5	114.5	117.5
1930	113.0	111.5	110.5	111.5	110.0	109.0	107.0	104.0	104.0	100.5	98.5	97.5	106.5
1931	95.0	95.0	95.0	95.0	94.0	92.0	90.5	88.5	87.0	84.5	83.0	81.5	90.0
1932	79.0	76.5	74.5	72.0	70.5	68.5	66.0	65.0	65.5	66.0	65.5	64.5	69.5
1933	64.0	63.0	60.0	60.5	61.5	64.0	65.5	69.0	70.5	70.0	69.5	73.0	66.0

[1] Calculated by giving weight of 24.0 to industrial workers' income, of 6.0 to trade, of 1.5 to service industries, of 1.5 to public utilities, of 5.0 to government and of 2.0 to interest and dividends.

TABLE 3.—*Indexes of income of industrial workers, by months, 1919–33* [1]

[1923–25=100]

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Av.
1919	89.0	81.5	80.5	81.5	83.5	86.5	93.5	97.0	101.5	97.5	103.0	108.0	92.0
1920	116.5	111.5	116.5	115.5	116.5	119.5	119.0	118.5	115.0	108.5	104.5	97.0	113.0
1921	86.5	80.0	78.0	76.5	76.0	76.5	75.0	76.0	75.5	74.0	75.0	75.5	77.0
1922	73.5	73.0	74.0	73.5	78.0	82.0	81.0	85.0	88.5	89.0	93.0	94.0	82.0
1923	96.5	96.0	99.0	101.0	104.0	106.0	106.0	104.0	102.5	102.0	103.0	101.0	102.0
1924	100.0	100.5	99.5	99.0	96.0	93.0	91.0	91.0	93.0	92.5	94.0	98.0	95.5
1925	99.0	99.0	98.5	99.0	99.5	100.5	103.5	103.5	104.0	107.0	108.5	108.5	102.5
1926	108.5	108.5	109.0	108.5	106.0	107.5	106.5	107.5	108.5	109.0	109.0	108.0	108.0
1927	106.5	107.0	107.0	106.5	106.0	106.5	106.0	107.0	107.0	105.5	103.0	103.0	105.5
1928	103.0	104.0	104.5	103.5	105.0	106.5	107.0	108.5	107.5	108.0	107.5	108.0	106.0
1929	108.0	109.5	109.0	110.0	111.0	111.5	111.5	113.5	113.0	110.0	104.5	101.0	109.5
1930	100.0	98.0	95.5	97.0	95.0	93.0	90.0	86.0	85.5	80.5	77.5	75.5	89.5
1931	73.5	73.5	73.5	74.0	72.5	69.5	68.0	65.5	63.0	59.5	58.0	56.5	67.5
1932	54.5	51.0	49.0	46.0	44.0	41.5	40.0	39.5	40.5	41.5	41.0	40.5	44.0
1933	39.5	39.0	35.5	36.0	38.0	41.5	46.5	50.5	51.5	50.5	50.0	50.5	44.0

[1] Calculated by giving weight of 16.0 to factory, of 3.0 to building, of 3.0 to railroad, and of 2.0 to mining pay rolls.

TABLE 4.—*Selected indexes of income, bank debits, industrial production, and urban population, 1919–32*

[1923–25=100]

Year	Consumers' income	National income [1]		Corporation income [2]	Bank debits [3]	Industrial production [4]	Urban population [5]
		Urban	Agricultural				
1919	87.5	73.9	147.9	----------	91.7	83.0	89.4
1920	101.0	91.1	118.5	95.6	104.2	87.0	91.2
1921	80.5	82.1	78.0	74.9	82.3	67.0	93.2
1922	84.5	84.4	86.8	81.0	85.3	85.0	95.1
1923	99.5	95.4	96.4	95.5	96.4	101.0	97.8
1924	97.0	99.2	99.0	96.1	96.4	95.0	100.1
1925	103.5	105.4	104.5	108.4	107.2	104.0	102.1
1926	109.5	109.7	100.3	111.0	110.9	108.0	104.5
1927	110.0	114.0	101.4	112.6	114.6	106.0	107.2
1928	112.5	115.4	102.5	122.6	121.0	111.0	109.3
1929	117.5	119.8	104.1	124.7	130.1	119.0	111.3
1930	106.5	108.3	82.2	108.8	112.3	96.0	113.5
1931	90.0	90.6	60.4	84.1	90.0	81.0	114.5
1932	69.5	71.4	44.9	62.9	65.4	64.0	114.7

[1] National Bureau of Economic Research and Department of Agriculture. Gross agricultural income is subtracted from the national income to obtain an estimate of urban income.
[2] U. S. Treasury Department.
[3] Harvard Economic Society. Index is for bank debits to individual accounts in cities other than New York City.
[4] Federal Reserve Board.
[5] Farm population on Jan. 1 is subtracted from total population on Jan. 1 to obtain an estimate of urban population.

Base weight for consumers' income is $36,000,000,000, for urban portion of national income is $66,350,000,000, for agricultural portion is $11,450,000,000, for corporation income is $127,165,000,000, for bank debits is $35,600,000,000, and for urban population is 81,235,000 people.

TABLE 5.—*Selected indexes of seasonal variation*

Month	Factory pay rolls	Railroad pay rolls	Mining pay rolls	Retail pay rolls	Service pay rolls	Interest and dividends [1]
January	96. 5	98. 4	101. 0	100. 0	98. 0	422. 5
February	101. 5	92. 8	106. 0	97. 0	99. 0	415. 0
March	103. 5	99. 9	98. 0	96. 0	100. 0	397. 5
April	102. 0	98. 0	94. 0	99. 0	101. 0	332. 5
May	101. 5	100. 5	96. 0	99. 0	101. 0	340. 0
June	99. 5	99. 7	95. 0	99. 0	101. 0	367. 5
July	95. 5	101. 7	89. 0	96. 0	101. 0	405. 0
August	98. 5	103. 6	94. 0	94. 0	101. 0	390. 0
September	99. 5	101. 1	101. 0	98. 0	101. 0	355. 0
October	102. 5	106. 4	110. 0	101. 0	100. 0	320. 0
November	99. 5	99. 3	107. 0	104. 0	99. 0	337. 5
December	100. 0	98. 6	109. 0	117. 0	98. 0	367. 5
Total	1, 200. 0	1, 200. 0	1, 200. 0	1, 200. 0	1, 200. 0	4, 450. 0

[1] Volume of payments in millions of dollars per month. Index to be applied to a 3-month moving average of monthly data centered on third month.

TABLE 6.—*Indexes of Government pensions and pay rolls, 1919–33*

[1923–25 = 100]

Year	All government	Federal Government				State and municipal	
		Pensions	Army-Navy	Post Office	Other	School	Other
1919	107. 5	85. 0	550. 0	67. 5	145. 0	55. 0	60. 0
1920	88. 5	105. 0	155. 0	80. 0	140. 0	70. 0	70. 0
1921	95. 0	117. 5	140. 0	85. 0	117. 5	82. 5	82. 5
1922	95. 5	117. 5	117. 5	90. 0	100. 0	90. 0	87. 5
1923	96. 5	102. 5	97. 5	92. 5	100. 0	95. 0	95. 0
1924	99. 5	97. 5	100. 0	100. 0	100. 0	100. 0	100. 0
1925	104. 0	100. 0	102. 5	107. 5	100. 0	105. 0	105. 0
1926	108. 5	105. 0	105. 0	112. 5	102. 5	110. 0	110. 0
1927	112. 5	110. 0	105. 0	115. 0	105. 0	115. 0	115. 0
1928	117. 5	112. 5	107. 5	120. 0	110. 0	117. 5	122. 5
1929	122. 5	115. 0	110. 0	125. 0	120. 0	120. 0	130. 0
1930	127. 0	122. 5	107. 5	127. 5	130. 0	122. 5	135. 0
1931	129. 0	135. 0	105. 0	127. 5	135. 0	120. 0	137. 5
1932	124. 0	137. 5	102. 5	120. 0	130. 0	117. 5	127. 5
1933	115. 5	122. 5	95. 0	110. 0	120. 0	115. 0	117. 5

Based upon estimates by W. I. King, upon Federal expenditures and appropriations for the Veterans' Bureau, for the Marine Corps and finance sections of the Navy Department, for the Quartermaster Section of the War Department, for the Post Office Department, and for "personal services" in other departments, and upon data from the Census of Occupations and the Statistical Abstract of the United States. The "all government" index is calculated by giving a weight of 6.0 to the pensions index, of 3.5 to the Army-Navy, of 4.5 to the Post Office, of 4.5 to the other Federal, of 12.5 to the school, and of 16.0 to the other municipal index.

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